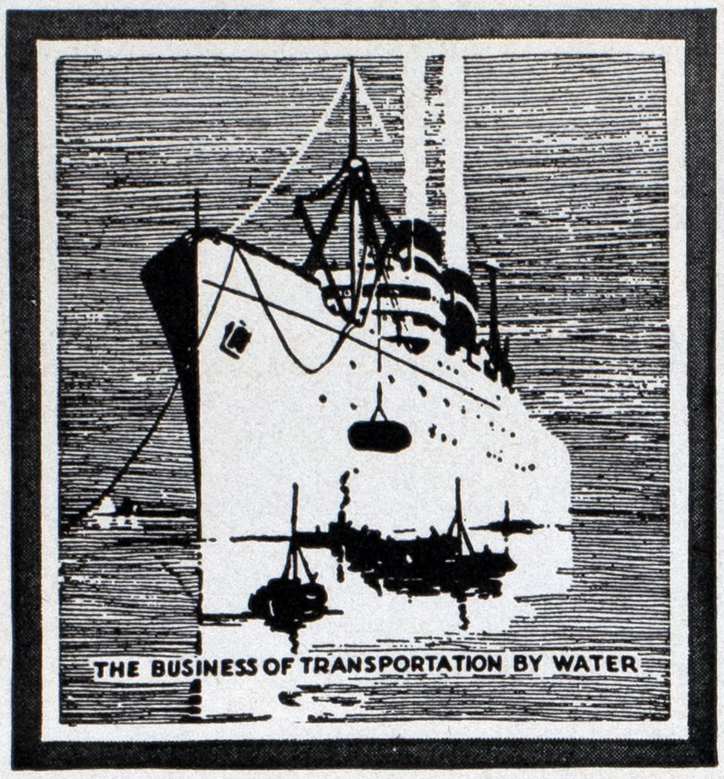
Marine Review

The National Publication Covering the Business of Transportation by Water

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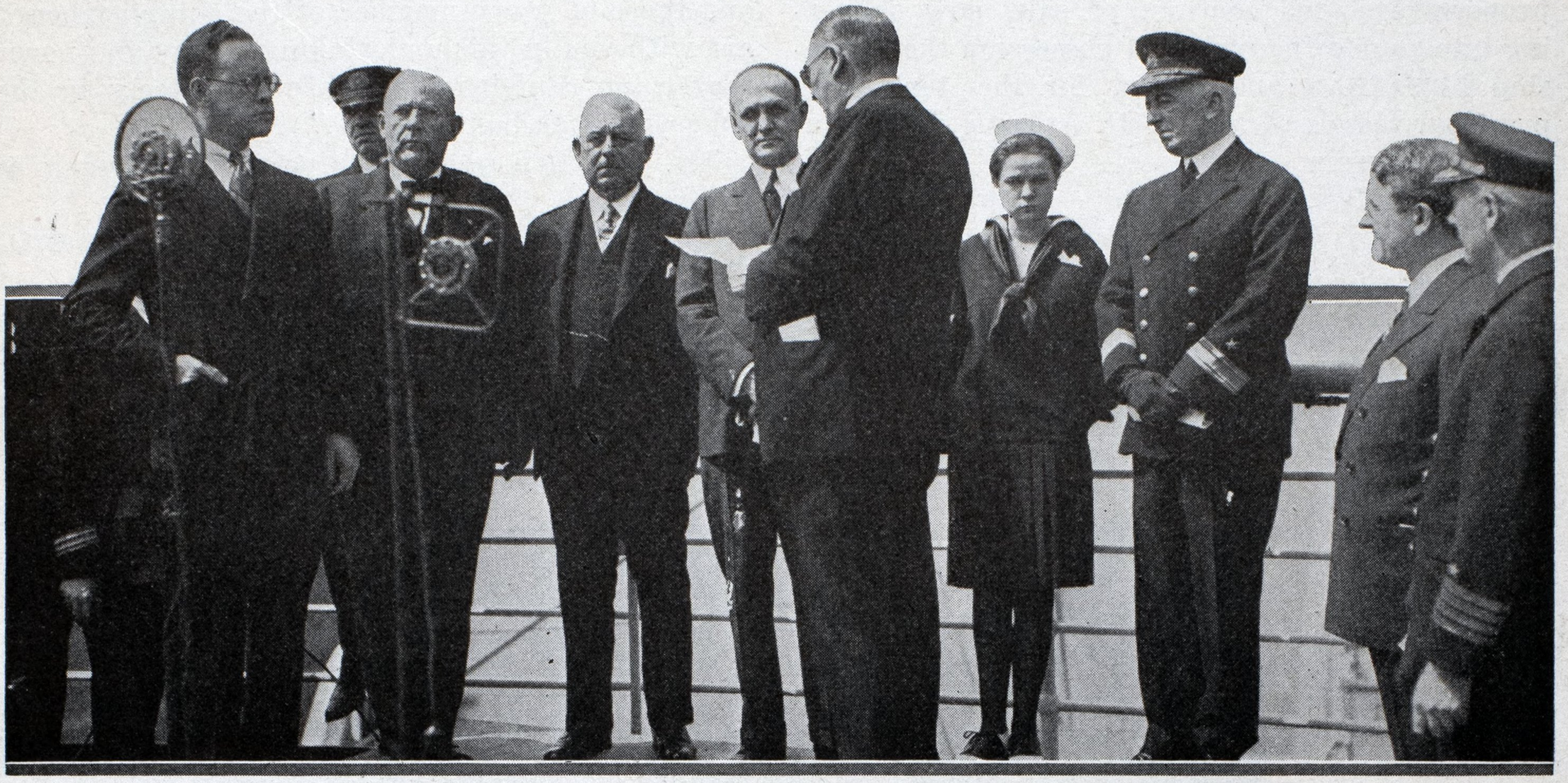
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Marine Review
May 1929



S. S. Leviathan Transferred to Private Owner, April 8, 1929. Left to right—David Burke; A. H. Denton; Capt. S. S. Sandberg; P. W. Chapman; T. V. O'Connor; Miss Joanna Chapman; Commodore H. A. Cunningham; Joseph E. Sheedy and Captain Moore

Transfer of Leviathan Inaugurates New Era in American Shipping

By E. C. Kreutzberg

LEVIATHAN, the flagship of the American merchant marine, formally was delivered into the hands of her new owners on Monday morning, April 8, fitting ceremonies being held on the giant liner as she was tied in her berth at Pier 86, North river, New York. The event was attended by a gathering of some 300, including many notables in the world of shipping. Following a breakfast in the main dining salon, those present made an inspection of the ship and then, at 11 o'clock, repaired to A deck aft. There, accompanied by the whirring of motion picture cameras, the old house flag of the United States shipping board was lowered and, in its stead, the house flag of the newly organized United States Lines Inc. was raised.

Like most events of historic significance, the transfer of the LEVIATHAN was a simple event. Only a few individuals took part in it. The internationally known LEVIATHAN orchestra started the proceedings by playing the "Star Spangled Banner," with everybody standing at salute. Then several men whose faces and general demeanor were those that go with individuals of the hard-working, serious-minded type, mounted a small platform set a few inches above the deck. One of them was T. V. O'Connor, chairman of the shipping board. He made a simple address, declaring that he was passing over the responsibility for leadership in the American merchant marine and that the new owners would be given the full support of the shipping board in the program of expanding the American flag service on the North Atlantic. Paul W. Chapman, head of the new United States Lines Inc., marked his acceptance of the vessel with a deep and solemn sense of the responsibility undertaken by him and his associates. Mr. O'Connor handed to Mr. Chapman the contract of sale, and Mr. Chapman handed to Mr. O'Connor a check for $4,000,000, part of the LEVIATHAN'S total purchase price, which is $16,032,000. It was only recently that Mr. Chapman amazed the shipping world by submitting the high offer of $16,032,000 for the LEVIATHAN and ten other liners comprising the fleets of the United States and American merchant lines. Mr. O'Connor's address, in part, follows:

"Mr. Chapman, on behalf of the United States shipping board, which under the law is the agency of the United States government in this transaction, I receive your payment and hand you a properly executed contract of sale, now delivering into your ownership and possession the steamship LEVIATHAN and calling for the ten other principal vessels of the North Atlantic fleets enumerated therein.

"In transferring ownership of this vessel to your hands I feel that I also am passing over the responsibility for leadership in the American merchant marine. Throughout the period the shipping board has been maintaining service in the North Atlantic the LEVIATHAN has ever been the flagship of all the government fleets. It goes to you as the flagship of our privately owned merchant marine with the full confidence of the shipping board that you will keep her up to the best standards of American shipping.

"Today the LEVIATHAN is the greatest and most famous ship in the world. Doubtless she will continue in this role for some years to come. Soon this magnificent vessel will be supplemented by other ships—greater ships than have yet been designed by man. I hope that I likewise may have the privilege of being present with you when a still greater vessel sails on her way as the flagship of the United States lines. My best wishes and those of every member of the shipping board are with you in this undertaking. May you never regret the confidence you are expressing in the American merchant marine."

Mr. Chapman replied to Chairman O'Connor as follows:

"Mr. Chairman, I accept delivery of the LEVIATHAN, which consummates my purchase of the United States lines and the American Merchant lines." He continued:

"It is with deep and solemn sense of the responsibility that I and my associates of the United States Lines Inc., today embark upon the great work of operating, maintaining and expanding the premier lines of the American merchant marine.

"We appreciate the honor and privilege conferred by our government in intrusting to us the opportunity for such vast and vital service to the American people in their commerce, industry and recreation during times of peace, and for

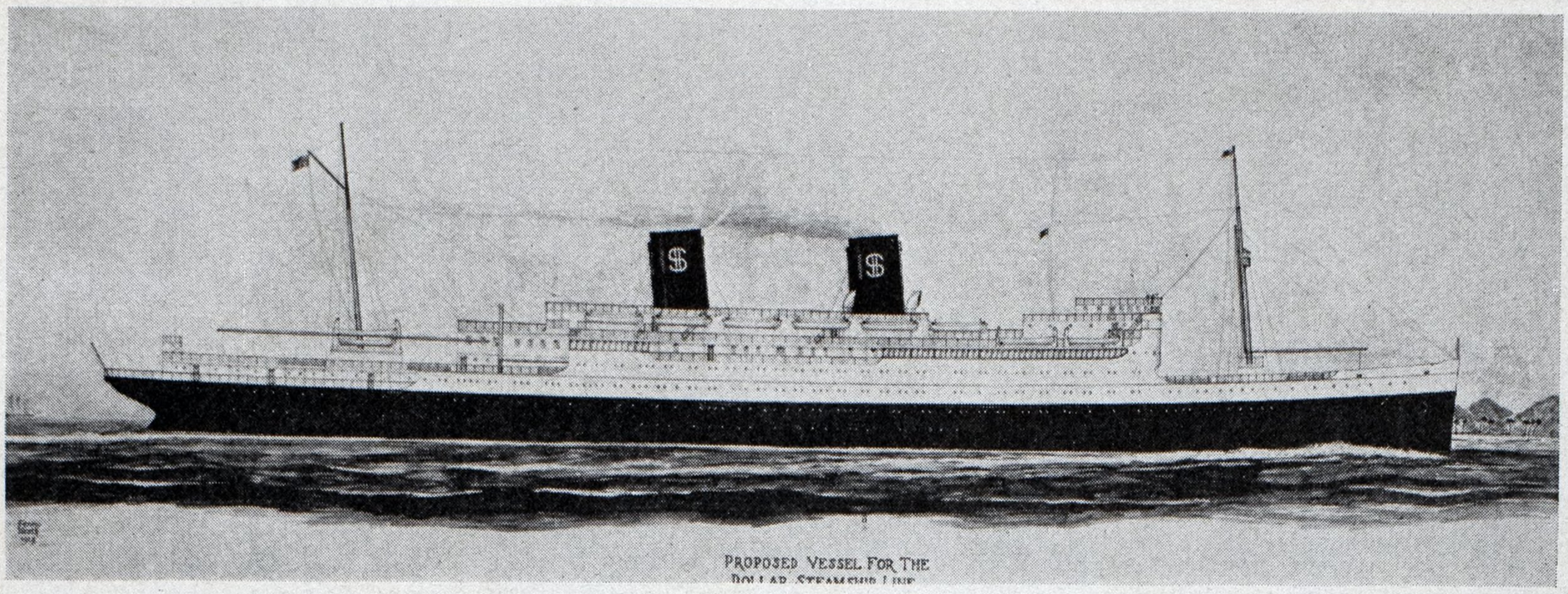
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At Right—Ceremony at Transfer of Leviathan. Left to right—P. W. Chapman, President, United States Lines Inc., New Owner; Miss Joanna Chapman; T. V. O'Connor, Chairman of the United States Shipping Board; Commodore H. A. Cunningham, Commander of the Leviathan; J. E. Sheedy, Executive Vice President, United States Lines Inc.





At Left—Raising of New House Flag on the S. S. Leviathan. Capt. Sandberg; Commodore H. A. Cunningham; Miss Joanna Chapman; Capt. Moore



Drawing of Trim Looking, Fast Ocean Liners for Dollar Steamship Line—Transpacific or Round-theWorld

Dollar Line Orders New Vessels

Huge Shipbuilding Program Totals $42,000,000—Largest Merchant Vessels Built in This Country—Maximum Speed 21 Knots

THE Dollar Steamship line, San Francisco, recently placed a contract with the Newport News Shipbuilding & Dry Dock Co., Newport News, Va., for the construction of two duplicate combination passenger and cargo vessels. When these vessels, together with other similar vessels in contemplation have been completed they will be placed either in the round-the-world or the transpacific services.

As has been generally known several large shipyards have been working on designs for this important tonnage; the design finally selected being that slowly developed and prepared by the Newport News Shipbuilding & Dry Dock Co. under the direction and supervision of Carl E. Petersen, working in conjunction with the directors and operating officials of the Dollar Steamship line. Special consideration has been given to the exacting requirements of the Dollar line services and the result of the design is that the vessels to be constructed are the largest, and from many viewpoints the finest, commercial vessels ever contracted for in this country. These splendid vessels are made possible as a result of the merchant marine act of 1928.

The photographic illustration shows the general appearance and type of the new vessels. The passenger accommodations have been laid out to fit the vessels for tropical service and consequently will be very roomy and luxurious. Every effort has been made to obtain the ultimate in passenger safety, comfort and convenience.

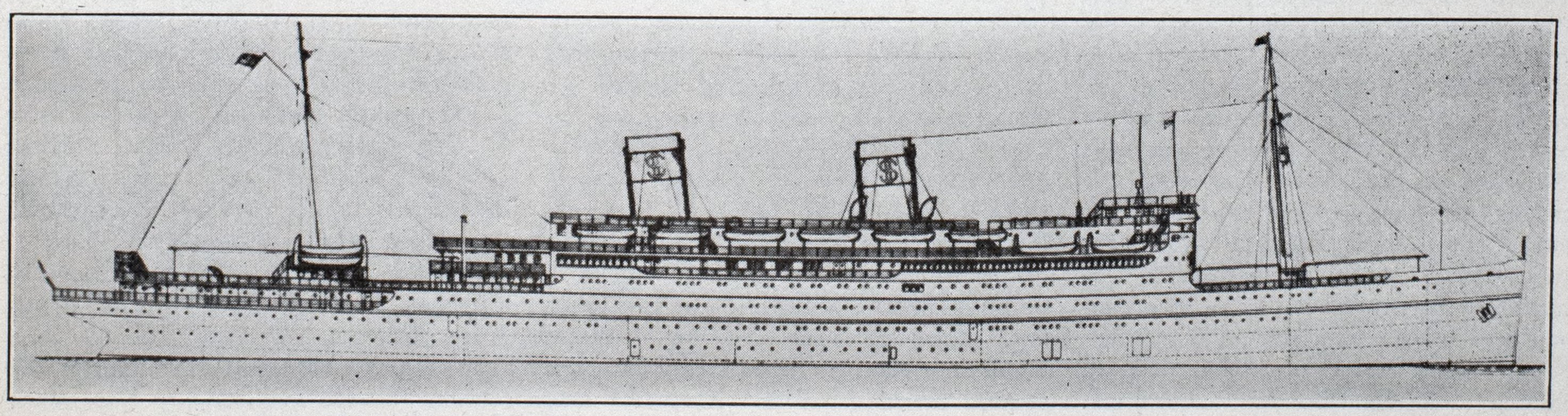
The Dollar line order is proof that extensive reconditioning jobs performed by the shipyard on vessels belonging to this company have proven satisfactory.

The new ships, to which the contract numbers 339 and 340 have been assigned, will be in many respects like the VIRGINIA, and the other Panama

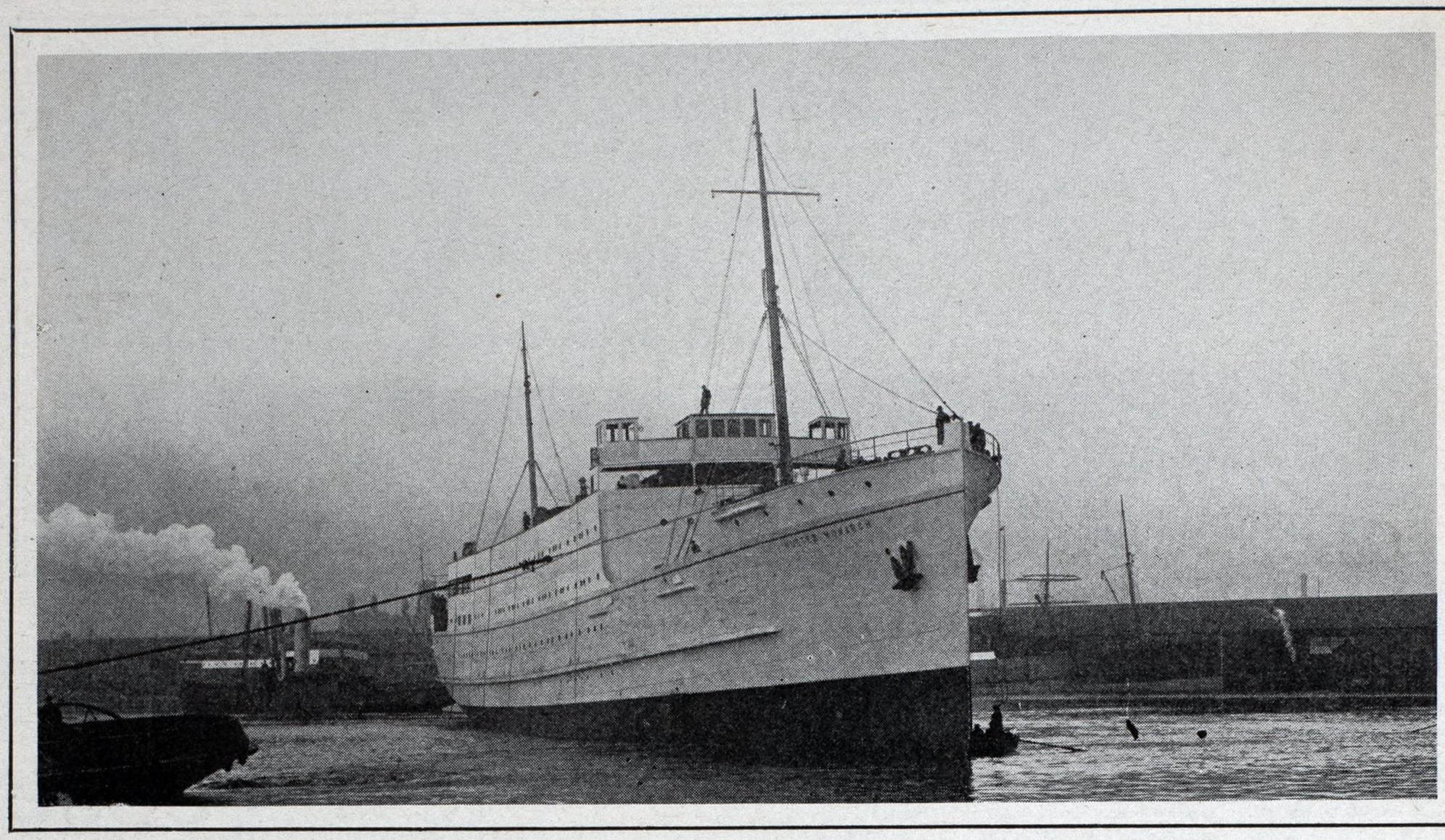
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General Particulars of New Dollar Liners

Length over all, ft., in.	653-0
Length on waterline, ft., in.	630-0
Length between p. p., ft., in.	615-0
Beam, molded, ft., in.	81-0
Depth molded to shelter deck at side, ft., in.	52-0
Depth molded to upper deck, at side, ft., in.	42-6
Load draft, designed, ft., in.	32-0
Load draft for scantlings and subdivision, ft., in.	34-0
Displacement at designed load draft (tons)	31,000
Deadweight capacity at 34'-0" draft (tons)	17,400
Cargo, general (cubic feet)	650,000
Cargo, refrigerated (cubic feet)	70,000
Shaft horsepower, maximum	26,500
Speed, designed (knots)	20 to 21
Fuel capacity (tons oil)	6,000
Boilers (watertube Babcock & Wilcox)	12



Outboard Profile of the New Ocean Liners for the Dollar Steamship Line—To Build Six



Ulster Monarch, First British Diesel Engined Packet Ship Launched by Harland and Wolff, Belfast

British Marine Affairs Are Active

Shipbuilding Orders from Home and Foreign Sources—Naval Building Helps—Diesel Electric for 1000-Foot Liner—Good Outlook for Cargoes

By Vincent Delport

European Manager, Marine Review

SINCE the beginning of the year considerable activity has reigned in the British shipyards. The fact that this activity has been maintained throughout the first quarter seems to indicate that this is not only an occasional spurt, but that the shipbuilding trade may be taking a decided turn for the better. Not only are contracts being obtained from British owners, but orders from abroad also tend to increase, indicating that British shipbuilders are better able to compete against foreign builders than they have been in the past. Sir Joseph Isherwood now is in Russia, where he accompanied a group of British businessmen who are exploring the possibilities of doing business with that country. He is testing the outlook as it may affect the construction of new ships, especially oil carriers, for Russian ownership. With regard to domestic trade, it is of interest to note that there is a greater proportion of orders for coal and oil burning steamers than for motorships. Contracts placed by the Admiralty with a number of private interests have served to increase the occupation of the yards. These include one flotilla leader, eight destroyers, five submarines, one river gunboat and two sloops.

The outlook in the shipping industry also is more promising. Rates although slightly easier than at the end of 1928, are substantially higher than a year ago, and there is a more active demand for tonnage. The importance of the shipping industry to British trade was emphasized by Sir Philip Cunliffe-Lister, president of the board of trade, at the annual dinner of the chamber of shipping on Feb. 25. He pointed out that the shipping industry in 1928 contributed £130,000,000 ($631,000,000) of invisible exports toward the trade balance, and expressed his gratification at the signs of improvement which would assist in building up the prosperity of the country. Lord Kylsant and Sir William Noble, presiding respectively at the annual meetings of the King line and the Cairn line, also expressed the view that the lowest point of the period of depression had been passed.

The March launches on the River Clyde constituted a record for the month with 22 vessels of 75,520 tons; the second highest tonnage for the month was in 1925, when 32 vessels of 73,956 tons were launched. For the first quarter of this year the tonnage launched was composed of 42 vessels aggregating 146,611 tons, as against 41 vessels of 167,902 tons in the first quarter of last year, which was a record for the first quarter of any year on the Clyde. Thus, while the tonnage launched in the first three months of this year does not compare so favorably with the record output of the corresponding period a year ago, it is the third best on record, and the March figure for this year shows a distinct improvement.

Among notable vessels recently launched on the Clyde is the CINGALESE PRINCE, of about 10,000 tons deadweight, 460 feet in length, 60 feet in breadth and 42½ feet in depth to shelter deck. This vessel is in-

tended for trading between New York and the Far East, through the Panama canal and round the world, back to New York through the Suez canal. She was built by the Blythswood Shipbuilding Co. Ltd., Scotstoun, for the Rio Cape Line Ltd., London. The twin-screw motorship RANGITAKA also was launched at the end of March by John Brown & Co. Ltd., Clydebank, for the Federal Steam Navigation Co. Ltd., London. This is the same type of vessel as the RANGITIKI, launched last August, and the RANGITANE, to be launched later this year by the same builder. These are sister ships of 16,755 gross tons, 531 feet long, 70 feet wide and 38 feet in depth. The propelling machinery consists of two sets of Brown-Sulzer internal combustion engines aggregating 9000 indicated horsepower. Barclay, Curle & Co. Ltd., Glasgow, launched the cargo steamer MAYA for the Cuyamel Fruit Co., of New Orleans. This ship is 405 feet 5 inches in length overall, 53 feet in molded breadth and 36 feet 6 inches in depth molded to upper deck.

Canadian Pacific Places Order

Two new contracts were placed early this year by the Canadian Pacific Railway Co. with the Fairfield Shipbuilding and Engineering Co., Glasgow, for two steamers for the night service between Vancouver City and Victoria. Each vessel will be 365 feet in length, 52 feet in breadth and 19 feet in depth; they will be propelled by quadruple-expansion reciprocating engines with oil-fired Scotch boilers, and will have accommodation for 1500 passengers. The two will cost about £500,000 ($2,425,000). Numerous other vessels of less than 10,000 tons have been ordered and launched on the Clyde during the past three months. Among the most interesting is an order from the government, through the Crown agents for the Colonies, for an exploration and ocean research ship to replace the present steam auxiliary barque DISCOVERY. The existing vessel is of wood, and 179 feet long. The new ship, which will be constructed by Ferguson Bros. (Port Glasgow) Ltd. will be of steel, and 232 feet long. She is expected to be completed in 12 months. One vessel launched on March 16 was for Norwegian owners. It is a single-screw motor vessel of 7820 tons deadweight designed for carrying light and heavy oils in bulk; the vessel was built by Barclay, Curle & Co. Ltd., Scotstoun, and the propelling machinery will consist of one set of Barclay, Curle-Doxford opposed piston, airless injection, oil engines of 2000 brake horsepower.

The North-East coast shipyards also are active. The yards on the Tees already have turned out 40,000 tons. The Furness yard has contracts in hand amounting to 75,000 tons. At Sunderland the keel has been laid at the yard of William Doxford & Sons Ltd. of a 10,600-ton vessel for the Yugo-Slav mercantile fleet for regular service between Adriatic ports and South America. A sister ship, also for the Yugo-Slav Lloyd, is expected to be started shortly at the same yards. Early in the year the Furness Shipbuilding Co. received contracts for two 10,000-ton vessels, while Smith's Dock Co. received an order for six grain steamers for the Canadian trade, bringing the total orders in hand by this firm to 29. Palmer's Shipbuilding Co. has booked a contract from H. E. Moss & Co., of Liverpool, for a motorship of 16,000 tons deadweight with Wallsend-Sulzer engines, and two large freighters have been ordered from Doxford & Sons, Sunderland, the vessels to be fitted with Doxford opposed piston engines. Among smaller vessels of interest are ten whaling vessels for Norwegian owners, to be built by Smith's Dock Co., South Bank, and a 6200-ton vessel secured by Swan, Hunter and Wigham Richardson's from Marseille owners.

New Liner Is Launched

At Barrow-in-Furness, Vickers-Armstrong Ltd. successfully launched the 20,000-ton liner ORONTES for the Orient Steam Navigation Co. The vessel is due for completion in August, and her first voyage will be a cruise in the Mediterranean in September. Accommodation is provided for 500 first-class and 1100 third-class passengers. The ship will be propelled by two sets of Parsons turbines developing 20,000 horsepower, with a speed of 20 knots. The dimensions are: Length, 664 feet; beam, 75 feet.

Superlines Diesel Electric

Harland & Wolff Ltd., Belfast, launched early this year the motorship ULSTER MONARCH, of which an illustration is shown at the head of this article. This is the first of three twin-screw motor passenger vessels building for the Belfast Steamship Co. Ltd. The two sister ships will be known as ULSTER QUEEN, which was launched on March 28, and ULSTER PRINCE. These vessels are intended for the Belfast-Liverpool express service. The principal dimensions are: Length, 345 feet between perpendiculars; breadth molded, 46 feet; depth molded, 19 feet; gross tonnage, 3760 The propelling units consist of two 10-cylinder airless injection type diesel engines of the Harland-Burmeister and Wain make, having the cylinder jackets and covers cooled by salt water, and the pistons cooled with oil. Another launch by Harland and Wolff was the HIGHLAND CHIEFTAIN, of 14,130 gross tons, the second of five similar vessels ordered by H. & W. Nelson Ltd., the first of which, HIGHLAND MONARCH, already has been described in these columns, which has successfully completed its maiden voyage and now plies between Spain, Portugal, Brazil and the Argentine. In about two months' time the same builders will launch the BRITANNIC, which will be the first White Star motor vessel.

There is a great deal of speculation with regard to the decision of the White Star line to employ diesel-engine propulsion for the new 60,000-ton liner. Up to now the highest power used on ships with diesel engines is 28,000 horsepower for the Italian liner AUGUSTUS. There also

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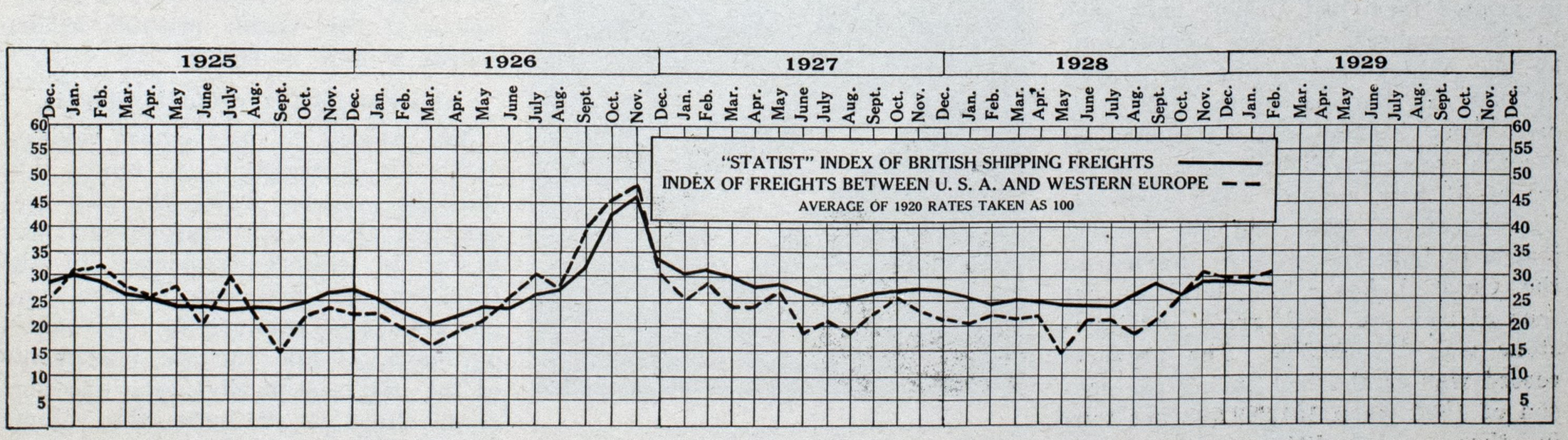


DIAGRAM SHOWING FLUCTUATIONS OF OCEAN FREIGHT RATES FOR FOUR YEARS AND TWO MONTHS

Navigation Opens on the Lakes

Lake Carriers Hold Annual Meeting—Draft Exceeds Last Year—Expect Good Season—Elect Officers—Students Not to be Employed

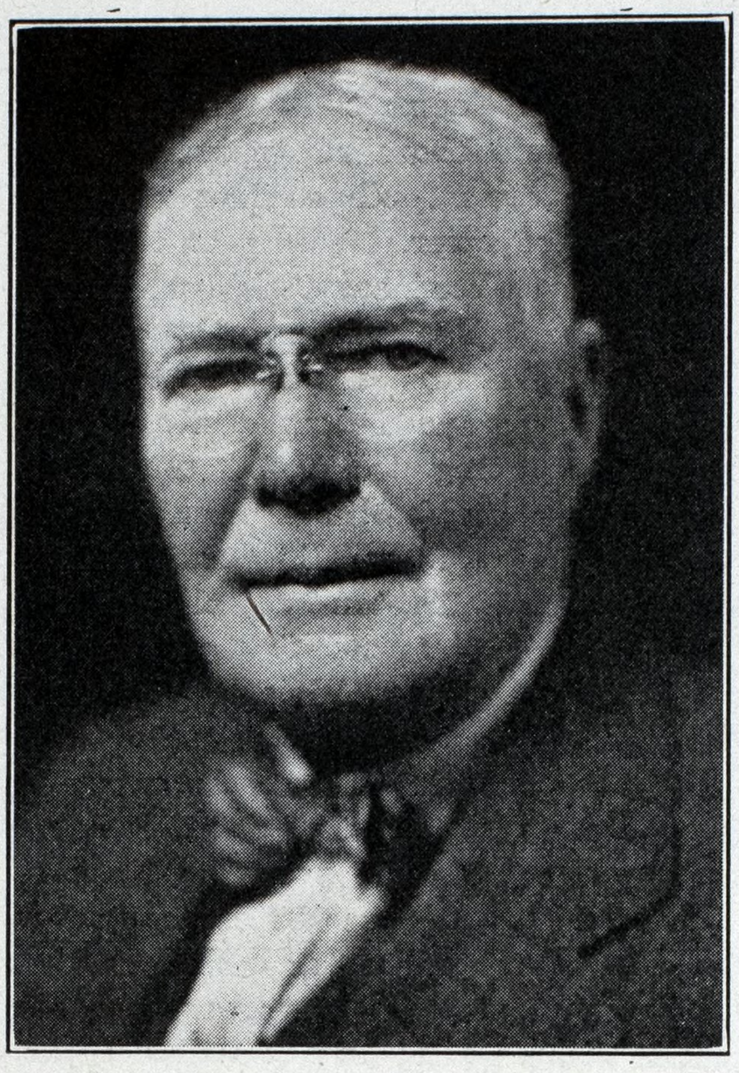
By A. H. Jansson

OPENING of navigation on the Great Lakes coincided closely this year with the annual meeting of the Lake Carriers association which was held at Cleveland, April 18. The formal opening of navigation occurred at midnight, April 15, whereas last year on account of ice conditions navigation did not begin until May 3. The allowable opening draft both up and down bound was 19 feet 6 inches. Last year the allowable draft at the beginning of the season was only 19 feet. The annual meeting was called to order by J. S. Ashley, president. There was a full representation of vessel interests, about 90 per cent of the voting stock being present.

Mr. Ashley attended to the usual routine matters in such an efficient manner that this business was quickly finished. Only two questions out of the ordinary came up. First, the by-laws were amended to allow the election of two vice presidents in place of one. George A. Marr, for many years, secretary-treasurer of the association was given the well merited honor of election as second vice president as well as re-election to the position of secretary-treasurer. Mr. Ashley, Mr. Sabin and Newton D. Baker were re-elected as president, vice president and general counsel, respectively. The second matter out of the ordinary was the promulgation and adoption of a fixed rule that no students should be employed on board ship for the summer vacation. The reason for this is the shortage of help on board ship at the time in September or early in October when these students report back for their fall term.

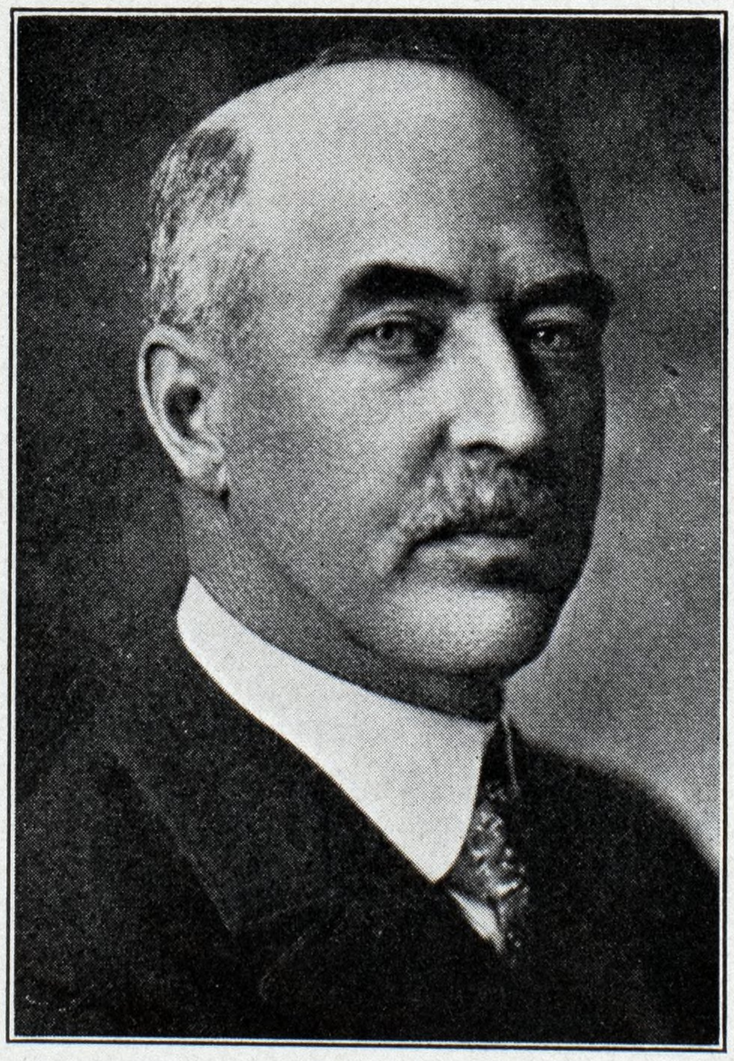
Many Records Broken In 1928

The annual report for last season in printed form had already been sent to the members. It was pointed out by Mr. Ashley that during the season of 1928, all but one of the 1927 records were broken and 14 additional records were established making a total of 31 new records. For instance, the season of 1928 had the largest traffic in bulk freight ever carried on the Great Lakes. The total in net tons of iron ore, coal, grain and limestone was 127,329,348. The previous record was established during the season of 1926 when 121,289,502 net tons in these commodities was carried.



J. S. ASHLEY
Re-elected President, Lake Carriers

Some other interesting records for the season of 1928 are, largest cargo ever carried on the Great Lakes—steamer CARL D. BRADLEY, July 27, 16,033 tons (of 2240 pounds per ton) of limestone. The same steamer held the previous record made in 1927 of 15,724 long tons of limestone. Largest cargo of iron ore—steamer DONNACONA, Sept. 26, 14,859 long tons to Sault Ste. Marie, Ont. The previous record also made by the same steamer, in 1927, was 14,532 long tons. Largest cargo of wheat, steamer LEMOYNE, Aug. 13, 555,000 bushels equal to 16,650 net tons. The previous record by the same steamer, in 1926, was 518,000 bushels. Largest cargo of wheat by American vessel—steamer HARRY COULBY, Nov. 22—503,282 bushels. The previous record of 482,000 bushels was made by the same steamer in 1927.



L. C. SABIN
Re-elected, Vice President, Lake Carriers

The states bordering on the Great Lakes, as previously reported in MARINE REVIEW, won a legal victory in the Supreme Court of the United States against the sanitary district of Chicago in the diversion of water for sewage disposal. In the interests of the health of the city of Chicago a master was appointed by the Supreme Court to hear evidence on the question of sewage disposal works to obviate the necessity of diverting water for this purpose. Hearings were held on this subject in Chicago by Charles Evans Hughes, master for the Supreme Court. Further hearings were held in Washington during the second half of April. The results and the report of the master in this case are not yet available. There is, of course, a difference of opinion on the part of the contending parties as to the time necessary to complete these works and also as to the amount of water necessary for the purposes of navigation in the Chicago river. In the meantime diversion continues but the justice of the complaint against the sanitary district of Chicago for diverting water from Lake Michigan and thus lowering the level of the lakes for the purposes of sewage disposal has been recognized and a cessation of this unfair practice in due course is now in sight.

The President's Annual Address

Mr. Ashley in his annual address said: "It is gratifying to report that the lake business during the past season has shown an improvement sufficient to restore confidence in the trade and the prospects for the coming year give grounds for reasonable optimism. While the ore movements of the past season have been exceeded seven times in the past, the volume of coal, grain and stone was record-

breaking and of sufficient volume to overcome the deficiency in the ore trade and build up an aggregate movement of the four commodities larger than had ever before been moved on the Great Lakes.

"The season had been somewhat shortened by the late opening of the channels but the improved levels of the lakes enabled the fleet to handle this immense traffic without encroaching unwisely upon the dangerous period of December navigation. The good water, good dispatch in port and the co-ordination of allied interests contributed to the breaking of a large number of records, an interesting account of which will be found on page 131 in the annual report.

"Relations with labor have been harmonious and we look forward to a continuance of the friendly co-operation that has existed for many years past between the association and the officers and crews of the vessels. Both the welfare committee and the committee of shore captains have given diligent attention to all matters coming under their supervision and have rendered much valuable service to the organization. (Reports of these committees appear elsewhere in this issue.)

"Fine co-operation has been enjoyed with the government, particularly the army engineers, the lighthouse bureau and the steamboat inspection service. In this connection I mention with regret that at the end of the present year, Capt. N. B. Nelson, the supervising inspector of steamboats at Cleveland, will be retired. Captain Nelson has been so eminently fair and impartial in his decisions and in his interpretations of the rules and regulations that it is regretable the law will not permit him to continue in office.

Lake Diversion Found Illegal

"A law was enacted in congress during the past year amending the White law with reference to range and anchor lights. The amendments were proposed by your association with a view of increasing safety of navigation and diminishing the hazards of the long bulk freight vessels while at anchor.

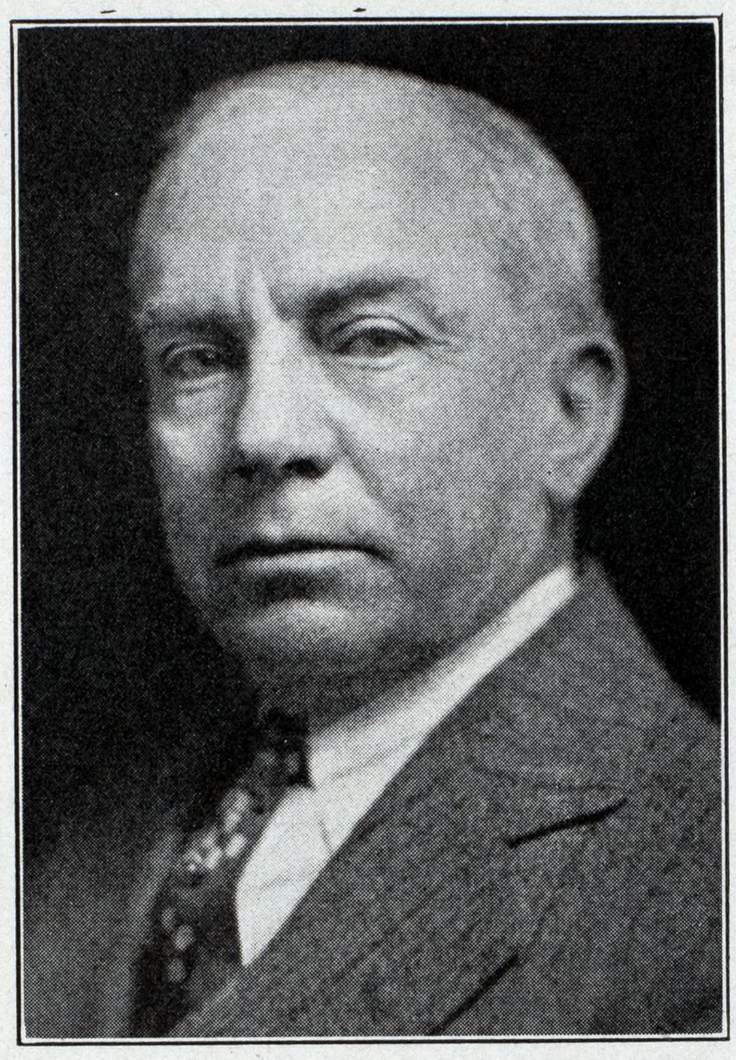
"Congress also adopted a law requiring a load line mark on seagoing vessels in ocean trade and an effort was made to extend its application to the Great Lakes. We protested against the inclusion of the lakes in a law written expressly for seagoing foreign trade and specific exemption of the lakes was incorporated in the law when it passed congress and received executive approval. A senate resolution was adopted at the same time requiring the secretary of commerce to investigate the need of a load line on the Great Lakes and to report to the senate in December, 1929.

"The outstanding event of the past year was the decision of the United States Supreme Court in the Chicago drainage canal case, the full text of which will be found on page 232 of the annual report. Under this decision the court finds that diversion for purposes other than navigation is unlawful; that the amount of diversion necessary for navigation of the Chicago river is negligible as compared with 8500 feet now being diverted; that the diversion must be reduced to a legal basis and the level of Lake Michigan restored; and that the drainage district shall 'devise proper methods for providing sufficient money and to construct and to put into operation with all reasonable expedition adequate plants for the disposition of the sewage through other means than the lake diversion.'

"To determine the practical measure needed to effect the object just stated and the period required for their completion the case was returned to the special master, Hon. Charles E. Hughes for further study and recommendation of a decree. The special master is now holding hearing on these questions and it is expected his report to the Supreme Court will be made next fall.

"Our association and the lake trade have suffered severely by deaths since our last annual meeting. The news which came to us without warning Jan. 19, of the sudden death of Mr. Coulby was a severe shock to us all. He was in apparent good health when he left this country. Mr. Goulder's death was not wholly unexpected, although his final illness was of short duration. In the death of these two men there have been disrupted associations that reached back to the earliest connection of any of our living members with the lake business. Not only were these associations cherished for their friendly and human aspects, but they were invaluable to all of us for the counsel, and help that these two men of outstanding ability freely gave in the interests of the whole lake trade.

"The sudden death of Carl D. Bradley in California on March 19, last year also removed from our midst a man of marked ability, who, while young in relationship to the lake trade had injected into it new features that have assumed prominence and importance. He was a staunch member of the association and the policies, purposes and spirit of the association were actively carried out by the vessels under his management."



GEORGE A. MARR

HONORED by the Lake Carriers after 25 years of able and faithful service, George A. Marr was elected to the office of second vice president as well as re-elected secretary-treasurer.

At the banquet following the annual meeting the Hon. Newton D. Baker extended to Mr. Marr the thanks and the appreciation of the president and the members of the Lake Carriers association, and presented to him, in their name, a beautiful watch.

Great Lakes Protective Association

After luncheon members of the Great Lakes Protective association met at the Hotel Cleveland. About 94 per cent of the voting stock was represented. Mr. Ashley, chairman of the advisory committee presided and read the financial statements of the yearly accounts from 1921 on. These will be found in the annual report of the association. It is interesting to note that in the 1921 account $3785.96 was returned to subscribers. For 1922 account the final return to subscribers totals $282,426.46. The 1923 account though not completely closed indicated a return of about $55,000. Though the accounts for the subsequent years including 1928 have not been closed, the indicated returns to contributors are as follows: 1924, $475.19; 1925, $154,253.63; 1926, $51,208.79; 1927, $58,500.53 and 1928, $67,700.60.

Mr. Ashley emphasized the necessity of some action with reference to the danger to vessel property in winter layup at Buffalo harbor. The losses from accidents to vessels in two se-

vere gales during the layup season drew heavily upon the funds of the association so that the rather large anticipated returns to subscribers for the year 1928 have dwindled to a comparatively small amount. A suggestion was made that the rates be increased for winter anchorage at the Port of Buffalo. Some action along this line will undoubtedly be taken.

An innovation, of great significance, which may have a far reaching effect on the entire vessel insurance question, has been adopted by the association, not without objection on the part of several members. Heretofore it has been the rule of the association that the members place 25 per cent of hull valuation with the association. In order to exercise more control for the benefit of the members, as explained by Mr. Ashley, it is the rule henceforth that 50 per cent of hull valuation of vessel property of the members be placed with the association. By so considerably increasing this mutual insurance it is felt that the members will have more to say in initiating action to salvage and to determine losses. Also the members will be in a far more strategic position as far as the usual conventional insurance is concerned.

Advisory Committee Is Elected

This action did not meet with the approval of A. E. R. Schneider, manager of the Cleveland Cliffs fleet and he withdrew the vessels of his fleet from participation in the protective association. The Jenkins and Inland steamship companies, also withdrew their vessels. This action involved 20 vessels of the Cleveland Cliffs, 4 of the Jenkins Steamship Co. and 3 of the Inland Steamship Co., making a total of 27; leaving 107 vessels all told within the Great Lakes Protective association.

Chairman and members of the advisory committee were re-elected with C. J. Peck taking the place of the late Harry Coulby and R. B. Wallace for A. T. Kinney, resigned. The remainder of the advisory committee are as follows: J. S. Ashley, chairman; Capt. C. L. Hutchinson, H. K. Oakes, A. E. Cornelius, F. I. Kennedy, A. E. R. Schneider, John T. Kelly, Capt. R. W. England, A. F. Harvey, George M. Steinbrenner. Officers will be elected by the advisory committee when it meets.

According to custom the annual meeting of the Lake Carriers association closed with a banquet at the Hotel Cleveland. As usual, a full representation of members of the association and guests attended. The association is fortunate in having for its general counsel such an eminent lawyer and public man as the Hon. Newton D. Baker, who acted as toastmaster. Mr. Baker made a brief address, outlining the present status of the lake water diversion case. This has previously been touched upon in this article.

Guests at the speakers' table included, Col. John Millis, U. S. A. retired, Major D. McCoach Jr., U. S. A. district engineer at Detroit, Major J. W. Bagley, U. S. A. of the United States survey, Capt. Irving O'Hay, U. S. A. retired, Isaac DeYoung, general superintendent St. Marys Falls canal, Capt. H. G. Fisher, commander United States coast guard service, Lieut. Com. F. Weldon, U. S. N., and Mr. Frank T. McArthur, superintendent of locks, Sault Ste. Marie, Mich.

The outstanding event of the banquet was the absorbingly interesting address by Capt. Irving O'Hay, soldier of fortune. The humor and the humanity of his vivid portrayal of experiences in wars all over the world kept everyone keenly interested and amused.

Officers

Lake Carriers' Association

President
J. S. ASHLEY

Vice President
L. C. SABIN

Second Vice President, Secretary and Treasurer
GEORGE A. MARR

General Counsel
NEWTON D. BAKER

Executive Committee

J. S. Ashley, chairman; H. S. Wilkinson, C. L. Hutchinson, C. C. Canfield, J. S. Wood, J. J. Boland, G. A. Tomlinson, J. C. Evans, A. E. R. Schneider, A. F. Harvey, H. K. Oakes.

Alternates

J. T. Kelly, A. C. Sullivan, W. P. Schaufele, W. H. McGean, J. B. Ayers, James McAlpine, A. H. Ferbert, W. G. Stewart, H. G. Dalton, A. E. Cornelius.

Directors

Cleveland

J. S. Ashley, J. Burton Ayers, Newton D. Baker, Fayette Brown, C. C. Canfield, H. G. Dalton, R. W. England, A. H. Ferbert, A. F. Harvey, C. L. Hutchinson, Chas. O. Jenkins, John T. Kelly, Geo. Kendrick, F. I. Kennedy, Geo. A. Marr, Walton H. McGean, H. K. Oakes, R. J. Paisley, C. J. Peck, L. C. Sabin, W. P. Schaufele, A. E. R. Schneider, Geo. M. Steinbrenner, W. G. Stewart, H. C. Strom, Carmi A. Thompson, G. A. Tomlinson, R. B. Wallace, Geo. H. Warner, and Joseph S. Wood.

From Other Cities

J. J. Boland, J. C. Evans, A. E. Cornelius and J. E. McAlpine of Buffalo; H. F. Hughes and A. C. Sullivan of Chicago; W. P. Snyder Jr. of Pittsburgh; H. S. Wilkinson of New York, and J. G. Munson of Rogers City, Mich.

Great Lakes Shore Captains Report

SINCE the last annual meeting of the Lake Carriers association the Shore Captains committee has held ten meetings, and the personnel of the committee is the same as last year.

At two of the meetings the president of the association presented to the committee three cases of violation of the lake carriers rules, which define up-bound and down-bound courses, the masters involved appeared before the committee and two masters were found guilty of violating the rule.

This committee sincerely trusts that every manager will see to it that the necessary instructions are given to their masters, to the end that no violation of this rule will occur in the future, it would not seem that there can be any more question as to the value of separating the up-bound and down-bound fleets. While it might be admitted that the present rules are not perfect, they are certainly a great improvement over the old way of no regulations in the matter, and the Shore Captains committee welcome any suggestions from managers or masters that will improve and make for greater safety in the application of the separate courses.

The committee sincerely hopes that it will not be faced with any more hearings of masters for violation of these rules, as it is the most disagreeable duty assigned to the committee.

Vice President Sabin has presented to the committee many proposed projects for consideration in the matter of changes in lights, improvements in harbors, many matters pertaining to the radio broadcasting signal stations and a very large number of proposed bridges, and one tunnel as follows:

A proposed highway bridge from Fort Gratiot to Point Edward, at the mouth of the St. Clair river. A tunnel from Detroit to Windsor. A very large highway bridge from Detroit to Windsor. A highway bridge from Grosse Isle to Amherstburg crossing both the Livingston channel and the

Report submitted to the Lake Carriers Association at its annual meeting at Cleveland, April 18, by Capt. R. W. England, chairman of the Shore Captains Committee.

Amherstburg channel.

A highway bridge across the Maumee river, north of the present New York Central railroad bridge. A proposed highway bridge across the channel at Cedar Point, O.

All of these bridges will be without draws, and will have enough clearance for ships to pass under safely. The Detroit bridge will have the longest span in the world, the location of piers in the case of these bridges was about the only factor to be considered.

As usual different members of this committee attended the sessions of the navigation and industrial committees, and later the committee considered all of their recommendations.

It would appear that the many recommendations of the navigation committee in respect to its suggestions for lights and day marks of every sort and description, were practically completed by the different branches of the government having charge during the past year. At the last meeting of the navigation committee held this winter, its recommendations were limited in number, and it is believed that this is better than having a great array of new suggestions. In other words the navigation committee should ask for only those things which are absolute-



CAPT. R. W. ENGLAND
Chairman, Shore Captains Committee

ly essential to greatest efficiency. The Shore Captains committee has given full consideration to the water levels, both in the Soo river and Detroit and St. Clair rivers during the past season and recommended the deepest drafts consistent for safe navigation through these channels.

To Improve Harbors

Reports state that Major P. C. Bullard is making preparations for improving the Duluth-Superior harbor and other ports on Lake Superior. The work which is to begin May 1, is to cost $45,000 for the Duluth-Superior project and $113,500 for work on other ports. About $17,500 is to be spent in repairing the piers at the entrance to Duluth-Superior. Dredging and maintenance of the harbor will cost approximately $12,375. The remainder of the $45,000 is to be spent in harbor patrol, inspections and surveys, statistical reports, maintenance and care of the government property.

The superstructure of the breakwater at Keeweenah is to cost in the neighborhood of $55,000, and may be done by contract according to Major Bullard of the corps of engineers.

Safety and Education on Lake Ships

THE president of the Lake Carriers Association has purposely, I believe, omitted detailed reference in that part of the annual report for 1928, which has to do with the welfare plan, for the men on board ship, so that I may have the opportunity to tell about the work which Mr. Marr and his personnel have carried on through his office this past year.

First the registration of 23,931 represented an increase of 759 over 1927, and an increase on the ten year average of 20,429, but a considerable falling off from our high year—1926, when we enrolled 25,844. The registration from 1928 gave us funds of $28,938.00 while the expense of welfare rooms and schools amounted to $29,559.00, we being thus a little short of being self supporting. However, there was no lessening of our activities.

A highly commendable increasing interest has been displayed by fleet managers in this branch of our activity,—another substantial gain has been made over our previous peak. Cumulative deposits from the banks which furnish the records give a new high point of $2,012,181.60 greater



GEO. M. STEINBRENNER
Chairman, Welfare Plan Committee

by $261,212.64 than the amount deposited in the longer season of 1927.

It is to be regretted that full statistics are not available as all the banks accepting sailor accounts do not report to the Lake Carriers association. It is also a matter of regret that all the ships in the association do not encourage banking aboard ship. Our experience shows that constant urging from the manager to the master and from him to the seaman is productive of results. The Cleveland Trust Co. is continuing its prize contest for 1929, which contest was won in 1928 by the crew of the steamer LAGONDA in command of Capt. Guy L. Smith.

Two hundred seventeen steamers of the membership are now using this simple yet effective method of a ship's safety committee for reducing accidents aboard ship. While there has been no yard stick devised to measure our saving as a result of the increased use of the committee work, we do know that over the eleven-year period which the committees have been functioning, the death benefits have been greatly reduced, and that the number of accidents reported in the years following the inauguration of these committees is just one half the number occurring in an equal number of years preceding their inception. The records also show a corresponding

Report submitted to the Lake Carriers Association at its annual meeting at Cleveland, April 18, by Geo. M. Steinbrenner, chairman Welfare Plan Committee.

reduction in favor of boats on which committees are functioning as compared with the number of non-committee vessels.

With six men to a committee, on 217 boats during 1928, 1302 men were working for safety aboard ship, The cumulative benefits over the preceding year's committees' work, bespeak greater interest aboard ship among the crew in safety work, even though our full membership is not partaking of the advantages offered.

Some fleets that use the safety meetings do not send in reports to our office. The safety work in those fleets can be advanced through a closer cooperation with the organization, as the statistics made available and the suggestions developed at the meetings cannot help but be of use to the whole movement of safety first on Great Lakes ships. In other words, the more enthusiasm we can instill in the whole personnel of the fleet, the more men we get interested which must and will result in fewer accidents. Even though a ship does not hold to the committee meetings, there are some members of the crew who have been on boats that have practiced "safety first" with a resultant benefit to the crew of that ship.

The seventh season of furnishing books to Lake vessels has been concluded. There is an increase in interest on the part of the men aboard ship. This is evident by the circulation of about 55,000 books, and the collection of $3,590.59 from 164 ships of the association toward the support of the library work. A continuation of the success already gained is expected. The sum donated through the sailors, together with the $6000 donated by the Lake Carriers' association, amply financed this movement, with a good balance for the purchase of new books for 1929. This year the Lake Carriers' association has guaranteed a total of $7500 from sailors and their own donation, with the proviso that $1000 shall be expended for new books. A phase of special interest is the demand of the men on the boats for technical books relating to their employment.

As you will note from the annual report technical schooling was taken up by the association in Jan. 1916, since which time we have graduated 500 students prepared for original license as engineers, and 373 students prepared for original license as navigators, all of whom have received their government licenses. The total looks large, and it might seem that we have an abundant supply from which to draw, but the men seem to have a faculty for disappearing when most needed. We never miss the water until the well runs dry, and so it is along in September or October that our commissioners have hard work finding second assistant engineers or second mates.

The Welfare committee believes that there is considerable room for improvement in the attitude taken by some of the managers and that support must be given to the movement to encourage new men to attend school. Most of the young men who have been attending school during the past ten years were ambitious, but we must reach out to encourage, financially or mentally, the man who needs that help even though he is capable of the advancement which is almost sure to follow the procurement of his original license. There is no doubt that a good many of our graduates obtain shore positions, productive of remuneration comparable to what we offer. It might be that advancement beyond the first step in the licensed ranks comes too slowly,—marriage also enters into the equation. Our supply is not always abundant.

As I am speaking now about original licenses, let me illustrate what I have in mind about advancement, and the illustration should bring to you a picture of what I can foresee will happen unless remedial steps are taken.

From 1916 to 1928, we graduated 500 engineers—original license men. We have records of 315 of these men serving in licensed capacities during these years, as follows:

Chief engineers appointed	15
First assistants appointed	123
Second assistants appointed	154
Third assistants appointed	23
Total	315

From these figures it will be noted that we have lost about 40 per cent of our graduates as we can assume that with the demand which comes in the Fall for men, we could find positions for them if they were available.

From 1916 to 1928 inclusive, we have graduated 373 first license navigators. We have records of 248 of these men serving in licensed capacities during these years as follows:

Masters appointed	2
First mates appointed	78
Second mates appointed	168
Total	248

This shows a percentage of loss to the trade of about 33 1/3 per cent.

Schooling Should Be Encouraged

It must be borne in mind that all students graduating have sailed on association boats prior to their school attendance. Also that when we graduate these men we get practically 100 per cent licenses. Some fleets are conspicuous by the absence of students originating on their ships, even though our graduates find positions in their licensed capacity in those same fleets. It is to these fleets particularly that we ask the managers to make some effort to encourage their captains and chief engineers to recruit likely material for the schools. Mr. Marr each fall requests the different managers to do so but it is not known how many of the managers in turn request the captains and chief engineers of their fleets to bear this in mind.

The school system which has been developed is competent and is elastic in that we could handle more students, and our instructors welcome further additions to their duties. We cannot graduate captains or chief engineers, however, and these men must come up the ladder, and we ask that choice be given a school graduate when filling positions. Changes in licensed officer personnel at the start or during the season can be filled through the Lake Carriers' association, as the association has a record of available students either on dock or on nearby boats. The morale of our students is better served by being shipped through the office of the association.

It is not too soon to lay the foundation in the early months of the season. If it can be impressed on the minds of the ship's officers that worthy and competent men are wanted in the schools, we will be able to secure an increased enrollment, and this will give us a larger supply from which to draw.

The thanks of the Welfare committee for the success of the past years' work is tendered to the different managers, and to the Lake Carriers' association and its organization, since without this support no effort on our part could be successful.

The chairman takes this occasion to express to his fellow members of the committee the felicitations which are their due for conscientious and praiseworthy work in behalf of the welfare plan activities.

New Car Ferry Service

The Grand Trunk railroad has notified the interstate commerce commission that it proposes to establish a new car ferry service across Lake Michigan from Milwaukee to Muskegon, Mich. Expenditure of about $350,000 for this was authorized some time ago by directors of the Grand Trunk meeting in Canada, and installation is to be accomplished by the Grand Trunk Milwaukee Ferry Co., a subsidiary of the Grand Trunk system. The Grand Trunk is to maintain the present Lake Michigan car ferry from Milwaukee to Grand Haven, Mich., as an auxiliary.

Aid for Cargo Ships Is Needed

Cost of New Tonnage a Problem—Such Aid Would Help Shipyards—To Develop Efficient Vessels—And to Reduce Cost

By James A. Farrell

EXPANSION of our foreign commerce cannot fail to bring into existence questions likely to create misunderstandings in direct proportion as the premises upon which they rest remain shrouded in obscurity. In the midst of our activities insufficient attention has perhaps been paid to the great principle that the conditions that affect the welfare of any people, however far from us, exert a corresponding influence upon our foreign trade, and consequently upon the daily work of American producers who help to supply the needs of consumers throughout the world.

We note evidence of increasing industrial and commercial activity in other countries, and sometimes we hear apprehensive comment of keener competition, but it is well to keep in mind that such increase of activity among other peoples means enlargement of their power to satisfy their own wants and desires, and that in such satisfaction will always lie opportunity for expanded sale of our own products. It is a noteworthy fact that the five or six industrial nations that are our keenest competitors are also the heaviest purchasers of our products, manufactured as well as crude.

We Are Not Self-Sufficient

Our country is far from being self-sufficient and its internal prosperity is largely influenced by the material progress of other lands and by the good will of their nationals. Perhaps nowhere has this phase of the fundamental conditions of international exchange been more noticeable than in the field of oversea transportation. Nearly two centuries have passed since a French jurist and philosopher, Montesquieu, aptly said that "The movable effects and goods of the whole world belong to the whole world, which in this respect forms one state, of which all nations are members." The ownership of goods in transoceanic transit cannot be claimed exclusively either by the buyer or the seller, for the process of foreign trade involves many complicated transactions during which ownership passes from one party to another, until the goods reach the ultimate consumer. Nor can it be said that the exporter is more the absolute owner of the goods which he ships than that the importer is of the wares or commodities which he purchases.

Many centuries ago, the poet Virgil visualized such a condition as would exist if self-sufficiency had become the universal rule, when he sang of the sailor deserting the sea because there were no goods to carry for exchange. In more recent times



JAMES A. FARRELL
President, United States Steel Corp.

the claim to exclusive privileges in the transport of goods by sea has been described as leading logically to the transfer of cargoes from ship to ship in midocean, since there would be nothing for the outward bound ship to carry homeward, all nations reserving themselves the transport of their own export commerce. In developing an international trade it has been shown that our merchant marine must carry cargo both ways; and the inbound, to provide for successful operation, must approximate in volume the outbound. If we are to secure homeward cargoes from overseas, consisting of products controlled by others who may carry them in ships of their own flags, we must recognize the fact that ships, like foreign goods, are a part of the business of the sea, and should be treated as we expect to be treated when we find our ships and our goods seeking trade in other countries.

Need Sound Economic Policy

No one can read history without observing that no nation can escape the repercussion upon it of a sound or unsound economic policy, and nothing can more effectively sow the seeds of pernicious doctrines leading infallibly to economic measures that gnaw at the vitals of sound foreign trade, than the fashion of regarding commercial advance in a given field as a form of "penetration." Particularly deplorable is the recent habit of speaking of "commercial conquests" when referring to advances in foreign trade. It is obvious that no advance in foreign trade is possible in the absence of material progress in the purchasing markets, which progress in turn is dependent upon the ability of those markets to sell their own products to advantage.

Shipping was the last of our national industries to be demobilized after the war, and to a great extent it has not yet been accomplished. The government still retains ownership of a large fleet of all types, the greater part of which are laid up and doubtless will never be used for commercial purposes, because of the cost involved in making them ready for sea. Among such laid up vessels are two former German liners, and 400 odd cargo vessels aggregating more than 2,000,000 gross tons. The active fleet consists of some 233 cargo vessels of some 1,350,000 gross tons, engaged in overseas services, which compares with 180 cargo vessels of about 1,000,000 gross tons and 44 cargo and passenger vessels of about 535,000 gross tons, privately owned and engaged in overseas services, inclusive of the trans-atlantic steamers recently sold by the shipping board.

The various experiments, to which ownership and operation of trading vessels by the government have given rise, are still a fertile field for argumentative discussion. Nevertheless, the very presence of the instrumental-

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Address delivered by James A. Farrell, president of the United States Steel Corp. and chairman of the National Foreign Trade Council, on April 19, at the sixteenth National Foreign Trade Convention, held at Baltimore, April 17, 18, 19, 1929.

ity of government in the shipping industry has had a strong occult influence upon the destinies of American shipping. The lack of consideration accorded to American vessels in regular commercial operations, may be ascribed to the impression created by the intervention of a public administration into transportation by sea, which is but a branch of the general machinery of foreign trade. As a result, the prejudice aroused has reacted more or less upon all American shipping, and it may be pertinent to ask whether the time has not come to warn against boasting of the peaceful activities of our ships, on their uneventful journeys to the markets overseas, as a manifestation of collective mass action, since any vessel, whatever may be her flag, must give impartial service both to the countrymen of her owners and to the citizens of other nations who ship goods on her.

Regardless of the private opinions of some shipowners the laws compel them to render equal service to all of their clients and it cannnot truly be said that American ships are serving American trade more when they leave an American port with cargo than when they sail from a foreign port with cargo of foreign origin for an American destination, for it may be found that in some of the cargoes leaving American ports no proprietary American interest ever existed, save in the matter of the benefit derived from the expenditures made by the ship. This is the case when, for instance, vessels load Canadian wheat for export at American ports. Again, title to the goods in the cargo may have passed entirely out of American hands before shipment. This process may also be visualized the other way; as, for instance, when ships are loading cargo abroad for American ports upon which heavy advances or full payment have been made.

Government Share in Shipping

Such incidents of business are the daily routine of foreign trade, and particularly of that section of it which is more intimately concerned with transportation.

According to the latest available statistics, the total volume of waterborne foreign trade in the fiscal year 1928 was 99,250,000 tons, of which American vessels carried 40 per cent of the total volume. Total exports by American vessels constituted 32½ per cent of the total volume, which figure, however, does not convey a true picture of the bulk of exports of American origin in American vessels, because important shipments of Canadian grain are made through United States ports, as well as shipments of transient tropical products in parcel lots, and of other cargo purchased locally by foreign interests and shipped in vessels specially chartered for the purpose. Of the total exports in American vessels, the percentage of 32½ was divided between the shipping board (10 per cent) and privately owned vessels (22½ per cent).

As regards the total volume of imports, 49 per cent was carried in American vessels, of which government vessels handled 5 per cent and privately owned vessels 44 per cent. It may be asked whether the smaller percentage of imports than of exports carried by government vessels was caused by a deliberate avoidance of such tonnage by foreign shippers, which policy cannot be generally extended to privately owned American vessels, as instanced by the 44 per cent of the total imports carried by them.

The foregoing figures are inclusive of the important traffic on the Great Lakes. Taking ocean borne trade alone, exclusive of the Great Lakes, total imports by American vessels were 46 per cent of the whole, of which government vessels had 6 per cent and privately owned American vessels 40 per cent. In exports of the same class, American vessels had 22 per cent of the total of which the government vessels had 12 per cent and privately owned vessels 10 per cent.

Credit Due Private Operator

These figures show the extent to which the ocean borne trade of this country is still under government control, although the percentage has been somewhat reduced as against the government portion, by the recent activity of the shipping board in disposing of several government services to private owners together with the fleets used on those routes. That such material results were obtained by privately owned American ships under the conditions which have confronted their owners in recent years, is the best answer that can be given to any question that may arise as to the permanency of the services built up by private American enterprise under the most adverse circumstances. No other American industry ever faced such a situation. The fact that 1,500,000 tons of privately owned shipping engaged in foreign trade, built largely before the war at prices ranging from $80 to $120 per deadweight ton, has survived and is still operating in competition with the fleets of the world, speaks well for the perseverance of private management. Only the unbounded faith of private American shipowners in the soundness of their position, through the experience of years, and the efficiency of the men and material employed by them, has enabled them to survive artificial handicaps far greater than the economic burdens upon the operation of the ships themselves.

Increased Efficiency in Shipping

Various measures have been put into force of late to assist the continuity of the services sold by the government to private owners. Many privately owned ships and lines continue to be operated without assistance from the government. These lines, representing as they do a sound growth in the face of world competition and having persisted despite many discouraging conditions, are deserving of every encouragement and most certainly under no circumstances should they be handicapped by the fostering of competing cargo lines. It would be a poor foundation on which to build if American cargo lines that have maintained themselves without assistance should be in any way handicapped by the creation of new assisted services in the same trade routes. While the policy of mail subventions and fleet renewals by means of government loans to purchasers of shipping board tonnage, is still in the preliminary stage, the problem of promoting the growth of what may be termed " free shipping" —that is to say, free of government connections—may require attention in the future.

Much of the efficiency attained by American owners of free tonnage through the adverse period of the past few years has been due to the application in the shipping industry of methods the worth of which had been demonstrated on land. To improvement in operation, however, there should logically follow a like progress in material, and in this respect there lies ahead a most important problem.

The economic conditions which gave a distinctively American character to the management and manning of American ships should also be given consideration in the evolution of the ships themselves. This process concerns primarily the shipbuilding industry, which will be called upon to provide American shipowners with the types of ships best suited to their needs. Back of the ships there must

(*Continued on Page* 64)

Diesel Geared Engines Are Installed in Largest German Motorship

THE motorship ST. LOUIS of the Hamburg American line arrived in New York, April 9, on her maiden voyage. She sailed from Hamburg on March 29 and en route stopped at Boulogne, Southampton and Halifax.

This new vessel, named after the Missouri city, was launched at Vegesack, Germany, on Aug. 2, 1928. Mrs. Carl F. G. Meyer, wife of the former president of the St. Louis chamber of commerce and chairman of the delegation from that city which attended the launching ceremonies, christened the ship.

The ST. LOUIS is a twin motorship of 16,000 gross registered tons with two masts and two stacks. She is 575 feet long and 73 feet wide and has a speed of 16 knots. She is equipped with anti-rolling tanks which have met with such favorable reception on steamers of the ALBERT BALLIN class.

Above the hull of the ship, containing the three passenger decks, C. D. and E, rises a superstructure comprising four decks. F deck contains the cabin class staterooms. Above this deck are the promenade deck or A deck, which is entirely given over to public rooms of the cabin class and a partly glass-enclosed promenade; the boat deck, containing only single berth rooms, officers' quarters and a promenade; and a special sports deck, the forward end of which is occupied by the bridge and captain's quarters.

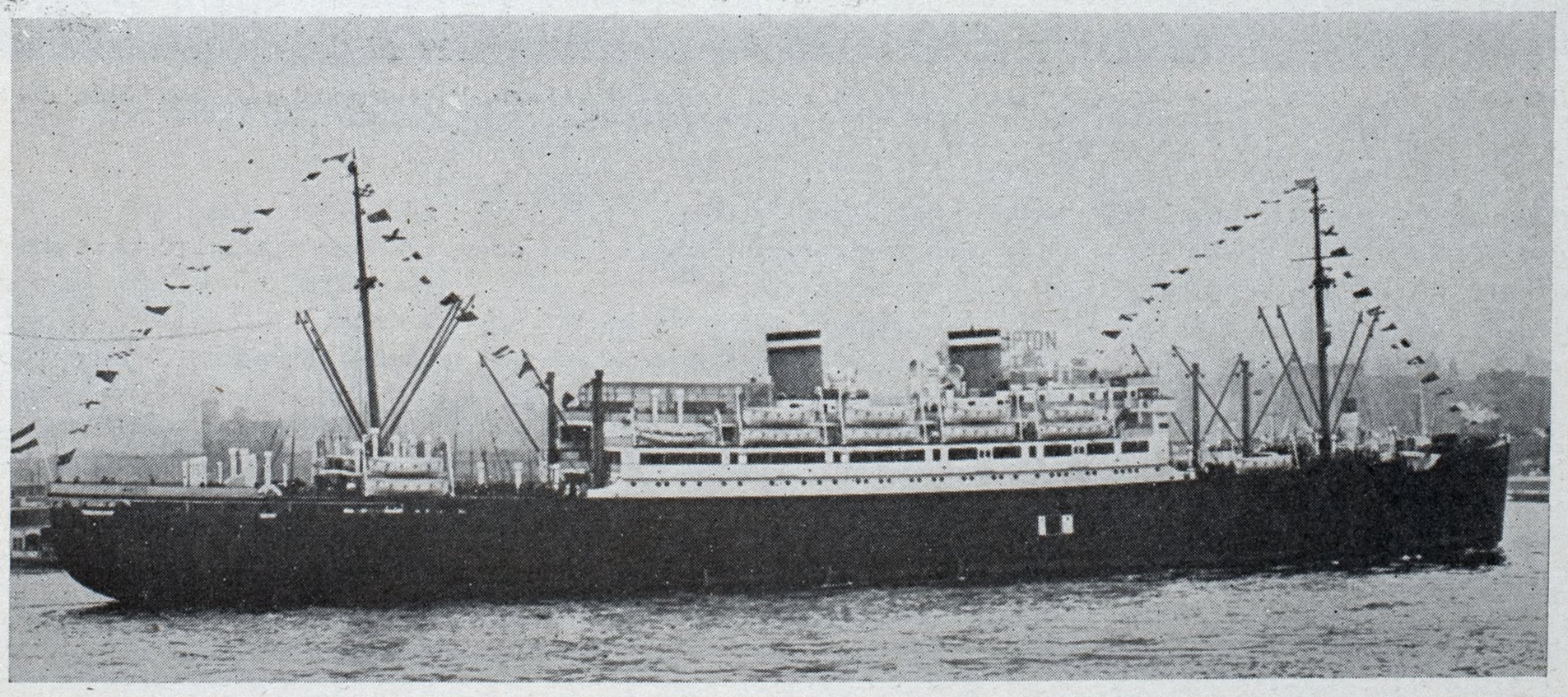


CAPT. FRIEDERICH BUCH
Commander of the Motorship St. Louis

The ST. LOUIS is the largest German motorship and is the first transatlantic liner to be propelled by geared-diesel machinery. The twin screws are operated by independent sets of two motors each, each set driving a propeller shaft through a single reduction gear, thus providing the greatest possible reliability. These high speed engines, built by the Bremer Vulkan works, develop a total of 12,000 brake horsepower. Each engine has six cylinders and turns at 225 revolutions a minute. The engine is only 28 feet long and the engine height is no more than 16 feet. Through the reduction gearing the propellers are turned at a speed of 110 revolutions per minute.

The auxiliary machinery equipment is of the latest type. The most important is the primary station for generating electric current and consists of four single acting four cycle diesel engines, each of which drive a dynamo. Three of the dynamos supply the current for illumination and for the operation of all auxiliary engines. No less than 4500 lamps are provided for the ship's illumination. The fourth dynamo serves as an emergency plant; it can provide power for about 400 lamps throughout the corridors and upper decks, as well as for radio transmission.

The ST. LOUIS was built to meet the strictest regulations of the Germanische Lloyd. She is equipped



Twin Screw Geared Diesel Liner St. Louis—Largest German Motorship—Arrived New York April 9, 1929

with all modern appliances, such as watertight compartments, gyro-compass, radio direction finder, underwater sound signal system and automatic fire alarms. Her lifeboat equipment consists of two motorboats and eight ordinary lifeboats each thirty feet in length, six lifeboats each twenty-six feet in length and two additional lifeboats.

The passenger accommodations of all classes in the ST. LOUIS have been arranged to provide the greatest possible amount of comfort, and the decorations of the public rooms have been designed to create a pleasing effect. In the cabin class 420 passengers can be accommodated; 316 in tourist third cabin; 430 third class.

In the cabin class the large attractively furnished social hall, lounge and smoking room join with one another forming one complete suite of public rooms. At the after end of the superstructure, adjoining the balconied social hall is a veranda cafe extending through two decks. The dining salon, with a seating capacity of 220 passengers, and a special children's dining room are located on D deck, which is connected with the upper decks by an elevator. In addition to the spacious partly glass-enclosed promenade deck there is a special sports deck for outdoor recreation and exercise. A well equipped gymnasium and electric light bath on B deck, with an adjacent open air swimming pool, complete the sports and health facilities of this new motorship. In the cabin class there are four suites, each consisting of a living room, bedroom, bath and toilet; and 159 staterooms accommodating from one to four persons.

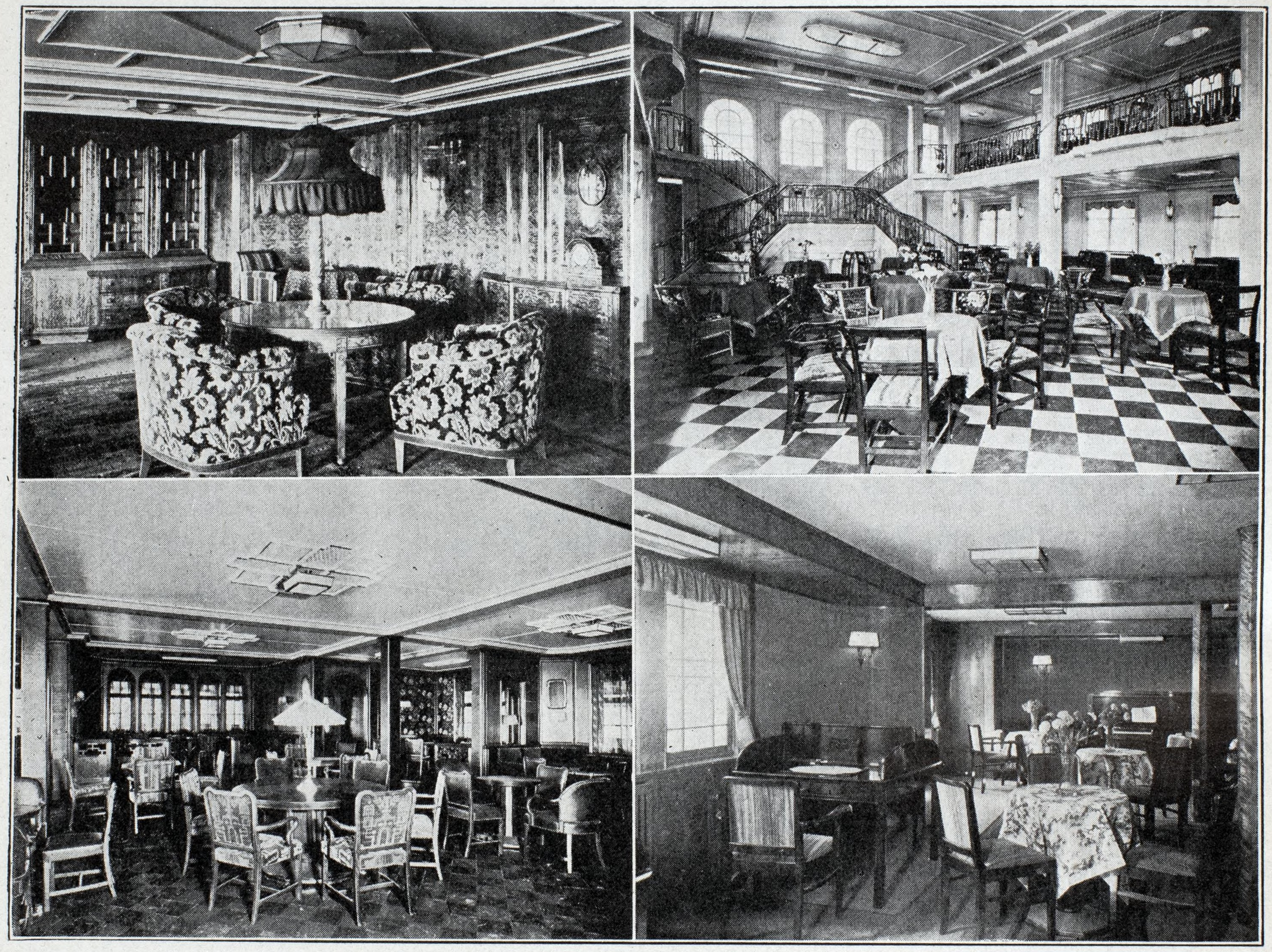
In the tourist third cabin the attractively appointed public rooms consist of a social hall, smoking room and dining room. A veranda cafe and spacious promenade are arranged for the tourist third cabin passengers and the swimming pool on B deck is available for their use at certain periods during the voyage. There are 100 staterooms accommodating from two to four persons each.

The third class offers comfortably arranged public rooms and staterooms in the forward and middle parts of the ship. The ladies' parlor, smoking room, special dance floor and two veranda cafes are located on C deck; the dining room and a special children's dining room and playroom are on D deck. Ample deck space is available for the third class passengers on B deck. There are 119 staterooms with 418 berths in the third class.

The captain of the ST. LOUIS is Friedrich Buch, who was formerly commander of the S. S. CLEVELAND, and before that on the S. S. THURINGIA in the transatlantic service. His staff of officers include: Hans Volquardsen, first officer; Walter Glahn, Friedrich Stengler and Heinrich Laarmann, second officers; Casimir Maschke, third officer; Kurt Hauer and Otto Lemmermann, fourth officers.

The purser is P. Bohm. The chief steward in cabin class is M. Schonewald; in tourist third cabin, H. Hamel; in third class, J. Poch; The first chef is K. Willmann.

Other members of the crew include: Chief Engineer, August Kravack; First Electrician, Peter Laass.



Diesel Liner St. Louis. Upper Left—Ladies' Lounge in Cabin Class. Upper Right—One End of Balconied Social Hall, Cabin Class. Lower Left—Smoking Room, Cabin Class. Lower Right—Social Hall, Tourist Third Cabin

New Passenger Service to Mexican Ports

The Gulf Mail Steamship Co., which was recently awarded a 10-year mail contract between New Orleans and Progreso, Mexico, will establish passenger service between these two points. The mail contract was awarded on April 8 and service will begin on June 1. The Munson line was the only other competitive bidder. The contract was based on $1.18 per nautical mile per trip for the 10-knot ships and $3.73 per mile per trip for the 11-knot ships.

The company plans to place two oil-burning, 3000-ton ships in service between the two ports in June, with a speed of 11 knots, and in three years will place 13-knot ships in operation. American ships will be used exclusively. This will mean building new vessels specially designed to be suitable for this particular service.

First class passenger service will be maintained and the company expects to develop a substantial tourist business because of the interest recently created in the ruins of the ancient Maya Indian civilization.

Deputy Inspector General for Steamboat Service

John Dudley, Clarendon, Va., was recently appointed deputy supervising inspector general of the steamboat inspection service. Mr. Dudley is a graduate of North Columbia, Columbian and Georgetown Universities, is a member of the bar of Virginia and the District of Columbia, and is well known in legal and governmental circles in Washington. He was formerly associated with the United States food administration and Grain Corp.

Order Fireboat for City of New York

A NEW fire boat, capable of throwing 16,000 gallons of water per minute and constructed entirely of non-inflammable materials, will be built for New York city as a result of a grant by the board of estimate and apportionment recently authorizing Fire Commissioner John J. Dorman to advertise for bids from shipbuilders. The craft, to be constructed at a cost of approximately $320,000, will be the first boat built for the city in which no wood is to be used in the superstructure or hull.

Designs of the new boat as submitted by Henry J. Gielow, Inc., naval architect specify that the craft shall be 130 feet long with a beam of 26 feet and a draft of 7½ feet.

The water, to be pumped through two intakes on either side of the vessel, can be forced at a pressure of 150 pounds, through one nozzle on the main deck forward, two hose manifolds amidships, twelve 3½-inch hose outlets, two deck nozzles atop the wheel house and three more in the fighting-top astern. In addition, the boat will carry 4000 pounds of fire foam, a chemical preparation for combating oil and gasoline fires, and, it will carry 4000 feet of rubber hose on three reels.

Power will be supplied by five main gasoline engines of 548 horsepower each driving generators which will develop a total of 2740 horsepower. The electric current so generated is used to drive two electric motors of 1165 horsepower each. These electric motors will drive the twin screws propelling the craft at a speed of 18 miles an hour. It is specified that the engines shall be quickly reversible and that they shall have dual control for operation from either the engine room or the pilot house.

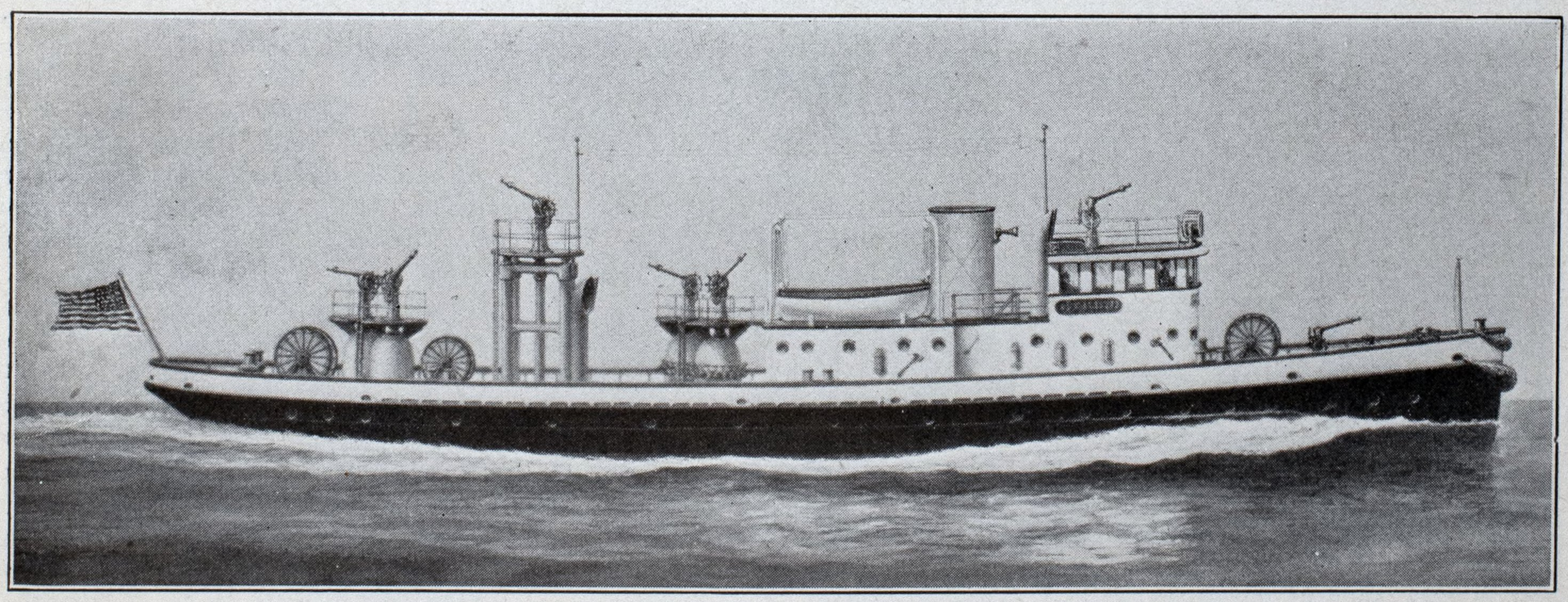
Non-Explosive Gasoline Tanks

Specifications of the engines are flexible enough so that competition will be permitted among Sterling, Winton or motor manufacturers of equal qualifications, according to Fire Commissioner Dorman.

Gasoline consumption of the motors is estimated at 50 gallons per hour per engine or a total of 250 gallons for the battery of five power units. The fuel will be in two tanks, one forward and one aft, the pair having a capacity of 6050 gallons. The tanks will be of a non-explosive type, protected by an aqua system with no air space above the gasoline level. In addition the tanks will have baffle plates to resist or check the swashing of the fuel and the containers will be guarded by encasements, which, in turn will be protected by a carbon dioxide fire fighting system.

A special arrangement of reversible fans aboard the craft will enable suction of fresh air into the crew's quarters or forcing of air out of the interior so that fire and smoke will not be drawn into the boat. Other features will be steam heat aboard generated by fuel oil burning boilers, lighting supplied by connections at the docks, and magnetic clutches between the engines and pumps so that the same power units can be used for propelling the craft and forcing the water through the nozzles.

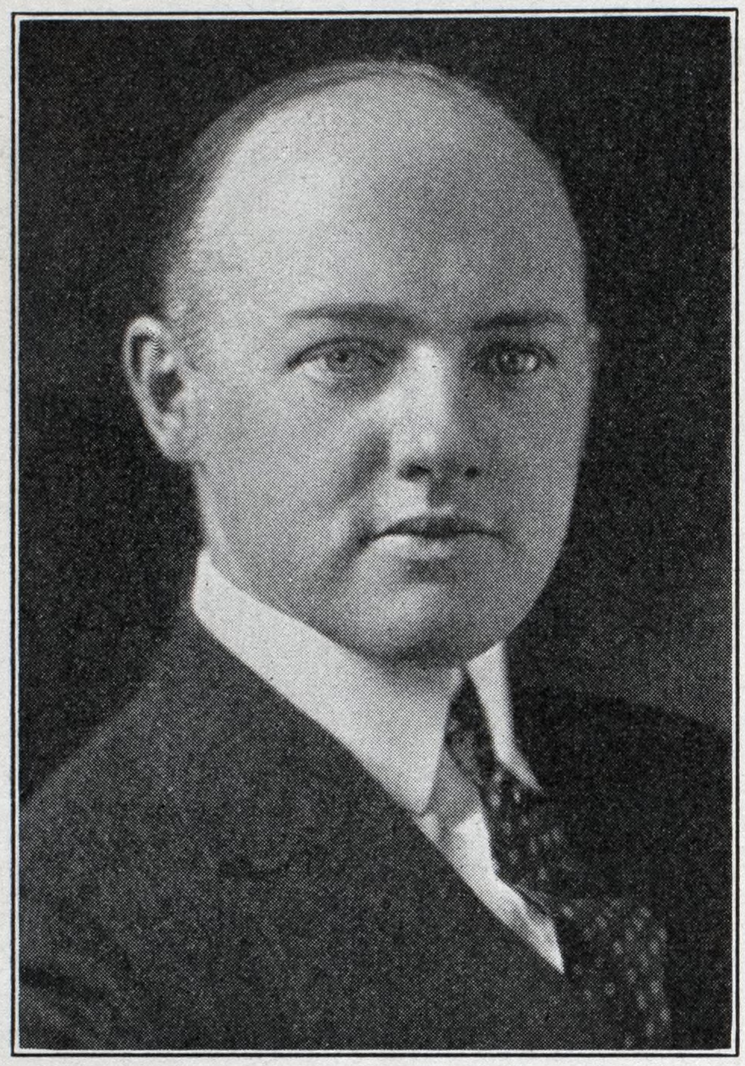
The boat will also be equipped with wireless telephone and telegraph and a receiving and sending set to keep in constant communication with the municipal broadcasting station WNYC.



DRAWING OF FIREBOAT TO BE BUILT FOR NEW YORK CITY. AFTER DESIGNS BY HENRY J. GIELOW INC.

Promoted to New Position with Cunard Line

The promotion of J. L. Austin, for 10 years manager of the Cleveland office of the Cunard Steamship Co. Ltd., to the position of assistant general passenger manager of the company with headquarters in New York,



Jesse L. Austin

Assistant Passenger Manager, Cunard Line

is a fitting recognition of faithful and able service. He assumed his new duties on April 1.

Mr. Austin opened the Cleveland office of the Cunard line in 1919, his company being the first of the transatlantic lines to recognize the importance of this city as a travel center. Practically all of the other large steamship lines soon followed the lead of the Cunard line and opened offices in Cleveland. S. A. Eddy, formerly manager of the Minneapolis office of the line, succeeded Mr. Austin as manager at Cleveland.

The steamship career of the new assistant passenger manager of one of the oldest and largest of the transatlantic lines began as office boy in the New York office in 1905 when he was 15 years of age. He was born in Brooklyn, N. Y., Feb. 12, 1890, and comes of seafaring stock, his family having followed the sea for generations. The Austins first came to America in 1638 on the good ship BEVIS and settled in Salem, Mass.

When he first joined the Cunard line the crack steamers of the fleet were the LUCANIA and CAMPANIA. He had varied experience in several departments until declaration of war in 1917 when he joined the American navy and served for two years. On release from duty in 1919 he rejoined the Cunard staff in the first class booking department, where he served for few months when ordered to Cleveland to establish an office.

The Cleveland office, serving Ohio and part of Kentucky, became one of the most successful offices in the Cunard chain under his alive and efficient management. All of his friends wish for him the greatest measure of success in his new duties.

Completes Twenty-Five Years of Service

John Pannes, passenger traffic manager of the Hamburg-American line, celebrates his twenty-fifth anniversary with the company on Monday, April 15.

Beginning as a booking clerk in the passenger department of the Hamburg-American line in 1900, Mr. Pannes was appointed Southwestern manager in 1906, and had charge of the St. Louis office. In 1913 he was transferred to Philadelphia where he was stationed until the company discontinued that office in 1917.

In 1921 Mr. Pannes entered the employ of the United American Lines Inc., as a member of the passenger department of the joint service operated by the Hamburg-American line and the Harriman shipping interests. Shortly afterwards he was promoted to the position of assistant passenger traffic manager and on Jan. 1, 1928, he was appointed passenger traffic manager.

He also was the recipient of a



John Pannes

Passenger Manager, Hamburg-American Line

material recognition from the board of directors of the company for his faithful services.

Is Elected Chairman of Board of Directors

Andrew Wells Robertson of Pittsburgh, president of the Philadelphia company, was unanimously elected chairman of the board of directors of the Westinghouse Electric and Manufacturing Co. in a meeting of that



A. W. Robertson

Chairman of Board, Westinghouse Electric Co.

board, held in its offices at 150 Broadway, New York city, Jan. 16.

Mr. Robertson is of Scottish parentage. He is in his 49th year. He was graduated from Allegheny college, Meadville, Pa., in 1906 with a degree of A. B. and from the law school of the University of Pittsburgh in 1910 with a degree of L. L. D. After practising law in Pittsburgh, he became general attorney of the Philadelphia company, which, with its affiliated companies operated all of the electric light and street railway properties and most of the gas properties in the Pittsburgh district. After having served for several years as vice president of that company in charge of public relations and the law department he was elected as its president in 1926, which office he has held since.

In addition to his important business activities, Mr. Robertson has been prominent in public affairs in Pittsburgh, especially in connection with the Pittsburgh chamber of commerce.

Mr. Robertson will withdraw from his other business activities and devote his entire time to the Westinghouse company. For the present his official headquarters will be in Pittsburgh.

Shipping Automobiles via Lakes Lowers Transportation Costs

By E. C. Powers

THE Great Lakes of North America, with the waterways which link them together, form a natural transportation system with an area of over 95,000 square miles and more than 8300 miles of shoreline. These great inland waters are a gateway into a section whose natural and industrial resources are of the first magnitude. Detroit, Cleveland, Chicago, Buffalo and Milwaukee, all great centers of industry, are located on this 8300-mile shoreline. Jamestown, Utica, Rochester, Pittsburgh, Youngstown, Canton, Indianapolis, Dubuque and other important manufacturing cities are comparatively nearby, connected to the Great Lakes by great trunk line railroads.

Unlimited natural opportunities for a water transportation system have lain virtually at the door of this great industrial section since the beginning of navigation on the Great Lakes. Extensive use has been made of it, but even though today it has no equal as a water route for inland commerce, it is by no means developed to its greatest possibilities. Manufacturers of automobiles made little or no use of this freight carrying medium 10 years or so ago, in fact, at that time they were just beginning to open their eyes to the economies and other advantages of transportation by water which was theirs for the taking. It remained for one man, Capt. William Nicholson to point out these advantages to automobile shippers and to gradually build up the movement into one of the most valuable specialized trades in Great Lakes shipping. An interesting feature in building up this trade is the use made of the older, smaller ore carriers at minimum expense for reconstruction.

Nearly nine years ago, during the year 1920, only 32,883 motor vehicles were transported on the Great Lakes. Since then, steadily increasing numbers have been carried by lake vessels. The total for the year 1928 reached the impressive figure of 171,969, over five times the number in 1920. Figures have been given which show that almost 80 per cent of the country's production of automobiles is in states bordering the Great Lakes. This production is divided up as follows in percentages: Michigan, 52.6; Ohio, 12.3; Indiana, 5.8; Wisconsin, 3.9; Illinois, 3.4; total, 78.0. During 1920, 1921 and 1922 the lake movement in commodities in the class of machinery and vehicles amounted to approximately 100,000 tons per year. Automobiles made up by far the greater part of this movement, both in tonnage and in value, though as we have seen this was but the beginning. *Transportation on the Great Lakes*, printed in Washington in 1926 refers to the freight movement of automobiles by lake vessel during and before the



S. S. David P. Thompson, with full deck load of Automobiles, at Terminals and Transportation Co. Dock at Detroit—Ready to Sail for Duluth, Minn.

year 1923 in the following terms:

"Transportation of automobiles, trucks, and tractors has risen to a place of importance in the lake trade. In fact, there are packet lines which devote their facilities almost exclusively to this movement. Including a relatively small proportion of privately owned automobiles, the movement aggregated 172,000 tons in 1923. The traffic is confined largely to exchange between ports on Lake Erie and Lake Michigan."

Becomes a Major Trade

The National automobile chamber of commerce gives the number of cars shipped by lake vessel for the past nine years as follows:

Year	No. of cars
1920	32,883
1921	22,310
1922	58,310
1923	81,587
1924	55,499
1925	103,158
1926	110,770
1927	124,369
1928	171,969

These figures show the remarkable growth in the business of shipping automobiles on the Great Lakes during the last nine years. In Table II on this page is given shipments and receipts in short tons of automobiles at the seven major Great Lakes ports. The estimated value of these shipments and receipts is given in Table III on page 35.

Captain Nicholson, founder and head of the Nicholson Universal Steamship Co., is responsible for building up the lake movement of automobiles. The Nicholson company in 1928 transported more than $100,000,000 worth of motor vehicles, carrying 70,000 cars from Detroit, Kenosha, Wis., and Milwaukee, Toledo, O., Buffalo and Chicago, supplying 5,000,000 people through 800 dealers in the territory around Cleveland, Altoona, Pa., Wheeling, W. Va., and Columbus, O. The company operates 12 vessels almost exclusively in transporting automobiles to and from various Great Lake ports.

As an example of the sort of service which the company carries on, let us take the CORALIA, a 4349-ton vessel which hauls automobiles between Detroit and Cleveland. This vessel, originally an ore carrier operated by the Pittsburgh Steamship Co., was purchased and converted by the Nicholson company into her present form and makes a round trip every day except Monday, carrying a cargo of 400 cars each trip. The length of the CORALIA is 413 feet, beam 48 feet and depth 24 feet. There are four decks for cargo in fair weather and three in uncertain weather. The cargo capacity of the vessel is 400 cars if weather permits use of the upper deck. The flooring of the intermediate decks is removable so that at the end of the season of navigation it may be taken out and the vessel used for grain storage.

TABLE I

Movement by Water of Motor Vehicles at All American Great Lakes Ports by Districts During the Year 1923, in Tons of 2000 Pounds

LAKE ERIE PORTS

Port	Shipments	Receipts
Detroit	93,545	75
Toledo	16,882	158
Cleveland	29,477	60,319
Buffalo	17,348	63,296
Erie	.....	540
Total	157,252	124,388

LAKE MICHIGAN PORTS

Chicago	66	18,728
Milwaukee	4,500	12,286
Kenosha	6,758	1,170
Holland	1,324	920
St. Joseph	1,155	1,213
Ludington	847	1,101
Racine	168	.....
South Haven	159	.....
Saugatuck	130	102
Total	15,107	35,520

LAKE SUPERIOR PORTS

Duluth-Superior	11	2,625
Meeweenah Waterway Ports	.....	109
Total	11	2,734
Grand Totals	172,370	162,642

Note: Combined Total Shipments and Receipts—335,012

Located amidships are two elevators, the shafts of which extend from the upper deck to the tank top. These elevators are operated by steam winches. Their lifting capacity is more than sufficient for raising and lowering the heaviest motor vehicles. In loading, the cars are driven over ramps to the deck of the vessel and then on the elevators. The task of loading begins with filling the hold first. The cars are lowered to the bottom and driven from the elevators to their storage spaces. This process is repeated, filling the lower deck, the 'tween deck and in case weather permits, the upper deck.

An arrangement of clamps and cables has been so worked out that when fixed in place it is practically impossible to move the cars. A clamp fits over the tire of each of the car's wheels and when set, holds the car securely in place. As a test for the holding power of these clamps, a truck was fastened to one of the cars and an attempt made to move it which was unsuccessful.

Other vessels operated by the Nicholson company are of the same general type as the CORALIA. These include the CITY OF BANGOR, the THOMAS DAVIDSON, the FELLOWCRAFT, the PENOBSCOT, the ROUMANIA, the SONORA, the SULTANA, the E. C. POPE, and the PROGRESS. The boats operate between Detroit, Cleveland, Buffalo, Chicago, Duluth, Green Bay Wis., Milwaukee, Toledo, O. and other ports on the lakes. In the CORALIA'S run between Detroit and Cleveland cars from Cleveland manufacturers are carried to Detroit and vice versa.

A Pioneer in Lake Shipment

Opening of navigation depends on the weather but is always much earlier for the automobile carriers than the ore fleet. The CORALIA left Detroit the morning of March 23, on the first voyage of the year 1929 and reached Cleveland the evening of the same day loaded with a cargo of 400 automobiles.

The business of transporting auto-

TABLE II

Receipts and Shipments, in Short Tons, of Motor Vehicles at Principal American Great Lakes Ports

Years	1923			1924			1925			1926			1927		
Ports	Receipts	Shipments	Total	Receipts	Shipments	Total	Receipts	Shipments	Total	Receipts	Shipments	Total	Receipts	Shipments	Total
Detroit	75	93,545	93,620	3,593	45,048	48,641	3,670	102,781	106,452	5,063	148,730	153,793	14,648	166,080	180,728
Cleveland	60,319	29,477	89,796	51,681	25,867	77,548	64,625	17,037	81,662	68,082	42,598	110,680	79,640	19,306	98,946
Buffalo	63,296	17,348	80,644	28,324	16,457	44,781	30,129	7,312	37,441	37,832	5,910	43,742	57,385	9,061	66,446
Chicago	18,728	66	18,794	26,346	487	26,833	54,098	395	54,493	47,840	559	48,399	35,164	311	35,475
Milwaukee	12,286	4,500	16,786	14,359	2,958	17,317	16,013	2,700	18,713	20,089	8,176	28,265	24,982	9,157	34,139
Toledo	158	16,882	17,040	624	4,117	4,741	589	13,201	13,790	350	9,895	10,245	782	9,257	10,039
Duluth-Superior	2,625	11	2,636	1,215	none	1,215	4,941	none	4,941	6,064	none	6,064	11,972	none	11,972
Total	**157,487**	**161,829**	**319,316**	**126,142**	**94,934**	**221,076**	**174,065**	**143,426**	**317,492**	**185,320**	**215,868**	**401,188**	**224,573**	**213,172**	**437,745**

TABLE III

Value in Dollars of Motor Vehicles Moved by Water at Principal American Great Lakes Ports During 4 Years

Years	1924			1925			1926			1927		
Ports	Receipts	Shipments	Total	Receipts	Shipments	Total	Receipts	Shipments	Total	Receipts	Shipments	Total
Detroit	3,209,200	40,543,200	43,752,400	3,120,350	87,363,850	90,484,200	5,063,000	148,730,000	153,793,000	14,648,000	166,080,000	180,728,000
Cleveland	46,512,900	23,280,300	69,793,200	64,265,000	17,001,500	81,266,500	68,082,000	42,598,000	110,680,000	79,640,000	19,306,000	98,946,000
Buffalo	33,988,800	16,457,000	50,445,800	30,129,000	2,421,000	32,550,000	37,832,000	5,910,000	43,742,000	57,385,000	9,061,000	66,446,000
Chicago	26,346,000	390,000	26,736,000	59,743,500	431,200	60,174,700	47,840,000	559,000	48,399,000	35,164,000	311,000	35,475,000
Milwaukee	14,359,000	2,958,000	17,317,000	16,013,000	2,700,000	18,713,000	20,089,000	8,176,000	28,265,000	24,982,000	9,157,000	34,139,000
Toledo	624,000	4,117,000	4,741,000	500,650	10,560,800	11,061,450	450,000	9,895,000	10,345,000	782,000	9,257,000	10,039,000
Duluth-Superior	637,700	none	637,700	2,594,200	none	2,594,200	6,064,000	none	6,064,000	11,972,000	none	11,972,000
Total	**$125,677,600**	**$87,745,500**	**$213,423,100**	**$176,365,700**	**$120,478,350**	**$296,844,050**	**$185,420,000**	**$215,868,000**	**$401,288,000**	**$224,573,000**	**$213,172,000**	**$437,745,000**

Note: Grand Total Estimated Value of Motor Vehicles Shipped by Water from and to Seven of the Principal American Ports on the Great Lakes During the Period 1923-1927, both Years Inclusive, $1,670,202,620

mobiles began in the case of the Nicholson company as a combination package and automobile freight. As more and more manufacturers began to see the advantages of water transportation both in lower freights and in quick and direct delivery, the company found it necessary to increase the automobile carrying capacity of its vessels. The job of conversion on the CORALIA was carried out entirely by the Nicholson company in its own yard at Detroit. Charges for the trip between Detroit and Cleveland vary from $5.50 for small cars to $22.50 for larger ones.

Nicholson interests in connection with the Northwestern railroad are constructing a large dock and warehouse in Milwaukee for the automobile trade. This equipment is to take care of shipments to the Far West. Similarly, the Nicholson company is building a $1,000,000 dock and warehouse in Cleveland. The first section of the Cleveland warehouse, the construction of which was to have been started April 1, is to be 550 feet long by 100 feet wide and two stories high, with a capacity of 1000 cars. Two floors are to be added later which will increase capacity to 2000 cars. Possible extension of the pier into the lake in time will give the company storage space for 10,000 cars.

Since the plan of shipping automobiles on the top deck of lake steamers was developed in 1927 by A. Miller McDougall, president of the Terminals and Transportation Corp., Detroit, approximately 40,000 cars have been transported to the west through the Duluth gateway in this manner. The total number of cars moved through Duluth harbor last year, according to the United States engineer's report was 19,024. Of this number, the Minnesota-Atlantic Transit Co. and the Terminals and Transportation Corp. were responsible for more than half. The combined facilities of the two concerns, which operate others in addition to the vessels, ACE, KING, QUEEN, JACK and TEN, known as the Poker fleet, transported 10,051 automobiles from the East to the West. This does not include the shipment by the same company of cars from Detroit to the East.

The Great Lakes Transit Co. reported a movement of 4715 cars through Duluth in 1927. This was part of the 11,972-ton movement through the port during that year. This represents the movement of automobiles from Detroit to only one other port on the Great Lakes. For the same year 2058 tons of motor vehicles passed through Keweenah Waterway, Mich., 2978 tons passed through Milwaukee, 317 tons through



Deck of S.S. David P. Thompson of the Pioneer Steamship Co.—Showing How Cars on Top of Hatches Are Moved Into Place

Below—Ready to Unload 350 Cars at McDougal Terminal, Detroit

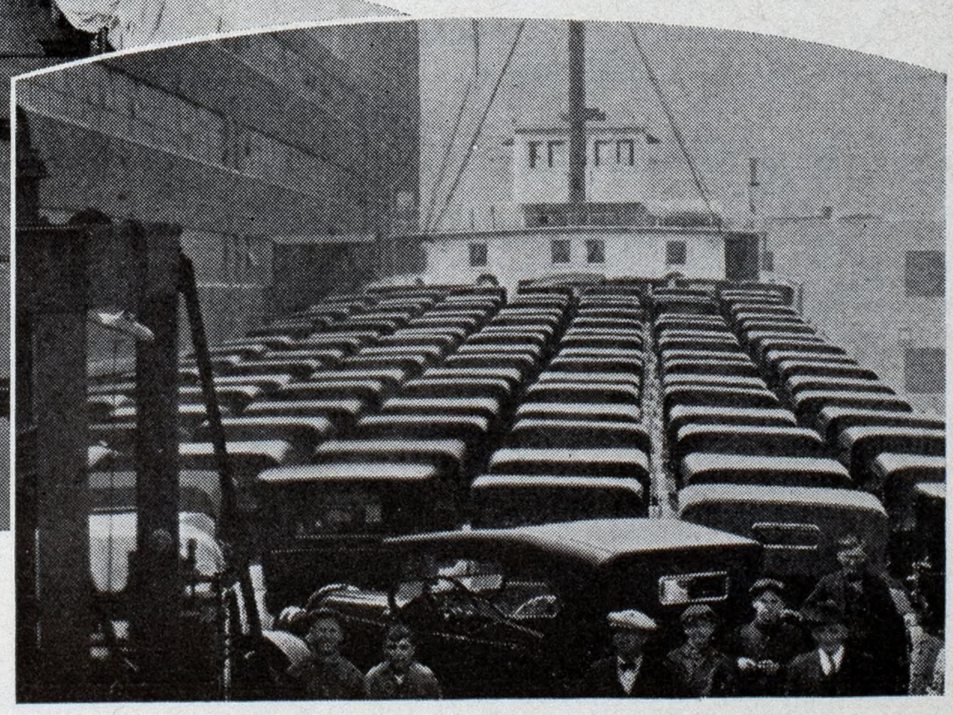


TABLE IV

Total Movements of Automobiles in Tons and Value in Dollars at Principal American Great Lakes Ports for the 5 Year Period 1923-1927, Both Inclusive

Ports	Totals for 5 Years Tons—2000 Pounds Receipts	Shipments	Totals for 5 Years Value in Dollars Receipts	Shipments
Detroit	27,049	556,184	$26,108,050	$526,917,050
Cleveland	324,347	134,285	318,818,900	131,662,800
Buffalo	216,966	56,088	235,290,000	54,595,800
Chicago	182,176	1,818	191,139,020	1,773,800
Milwaukee	87,729	27,491	87,729,000	27,491,000
Toledo	2,503	53,352	2,483,050	43,536,950
Duluth-Superior	26,817	11	22,646,200	11,000
Total	**867,587**	**829,229**	**$884,214,220**	**$785,988,400**

Kenosha, 8376 tons through Racine and 216 tons through Holland, Mich. Most of these cars were carried by the vessels of the Great Lakes Transit Co.

Carrying Automobiles on Deck

When the automobiles are received at Duluth, they are loaded into freight cars for shipments farther west driven directly away by dealers, or stored in the McDougall terminal to await future delivery to dealers. Under the finance scheme of the Terminals and Transportation Corp., a dealer can order a shipment of cars and have them stored in the McDougall terminal, ready for spot delivery by paying only a small percentage of the value of the cars.

The plan of carrying automobiles on the decks of freight steamers has resulted in a saving of thousands of dollars to receivers of the cars in the west and has produced revenue to lake carriers on space which prior to its inauguration was of little use. At first, some of the shippers and receivers did not look with favor on the deck shipping plan but those who tried it were satisfied with the service and saved money. It was not long before the skeptical ones were also using the water route and deck stowage for freight shipments. Protection is afforded each car shipped in this manner by an individual cover placed over it as soon as the car is stowed on deck. In this way, there is little danger of damage by the elements. Of course each cargo of cars is insured so that the shipper takes no risk in shipping by lake vessel.

An idea of the saving realized in shipping is comparing water and rail freight rates. Rates charged by the New York Central railroad for automobiles on board freight cars from Detroit to Cleveland are: 73 cents per hundred pounds on carload shipments, with a minimum weight of 10,000 pounds; $1.68 per hundred pounds per car when shipped in less than carload lots, that is, a person shipping a single car by rail from Detroit to Cleveland would pay $1.68 per hundred pounds.

Large Saving in Freight Charges

Weights for the various Ford models, which car is assumed to be the lightest, vary between 2089 pounds for the lightest to 2414 pounds for the heaviest. For the light model the rail rate would amount to 0.73 x 2089 or $15.25 per car in carload lots. The rail charge for shipping the heaviest model would be $17.62 for carload lot shipments. The figure for individual automobile shipments for the Ford model weighing least would be $34.67. Similarly the rate for the heaviest Ford model if shipped singly, would be $40.07 per car.

Bearing in mind the charge $5.50 made by the Nicholson Universal Steamship Co., for transporting smallest cars from Detroit, the saving in shipping by boat becomes very evident. On the light model Ford, there would be a saving on carload shipments of $9.75 per car and on the heavy model a saving of $12.12 per car. For shipments of individual cars, the shipper by freighting the light model by boat, would save $29.17 per car and $34.57 on the heavy model.

The rail rates from Detroit to Cleveland on heavy automobiles such as Cadillacs, varying between 5050 pounds for the heaviest to 4600 pounds for the lightest, would be $36.87 to $33.58 in carload lots. For individual Cadillacs, that is, in less than carload lots, the charge by rail for the heavy car would be $83.83 and on the lighter $76.36 per car from Detroit to Cleveland.

Movement Through Barge Canal

Taking the charge of $22.50 made by the Nicholson company for transportation of automobiles of greatest weight, the rate per car the size of Cadillac would be about $20. Thus the saving by shipping the heaviest Cadillac cars by water would be $16.87, if shipping in lots of at least 10,000 pounds. The saving per individual car shipments of heaviest cars would be $63.83 per car. In regard to lighter weight Cadillacs, using water shipment the saving realized would be $13.58 per car if shipping in lots of at least 10,000 pounds and $56.36 per car in case of individual automobile shipment.

There has been considerable thought given during recent years to the feasibility of transporting automobiles through the New York state barge canal. This has come about as a natural consequence of the steady growth in the trade on the Great Lakes. As evidence of this development a carrying company has recently been incorporated for operating a direct ship freight service between Detroit and New York city. This company, the Great Lakes & Atlantic Transportation Corp., it is reported has been capitalized for $10,000,000. Col. Edward C. Carrington, president of the Hudson River Navigation Co., operator of the Hudson River Night line is head of the new company which will merge the Night line and leading New York state barge canal shipping interests. The plan is to transport automobiles from Detroit and Cleveland to some port on the barge canal or the Hudson river.

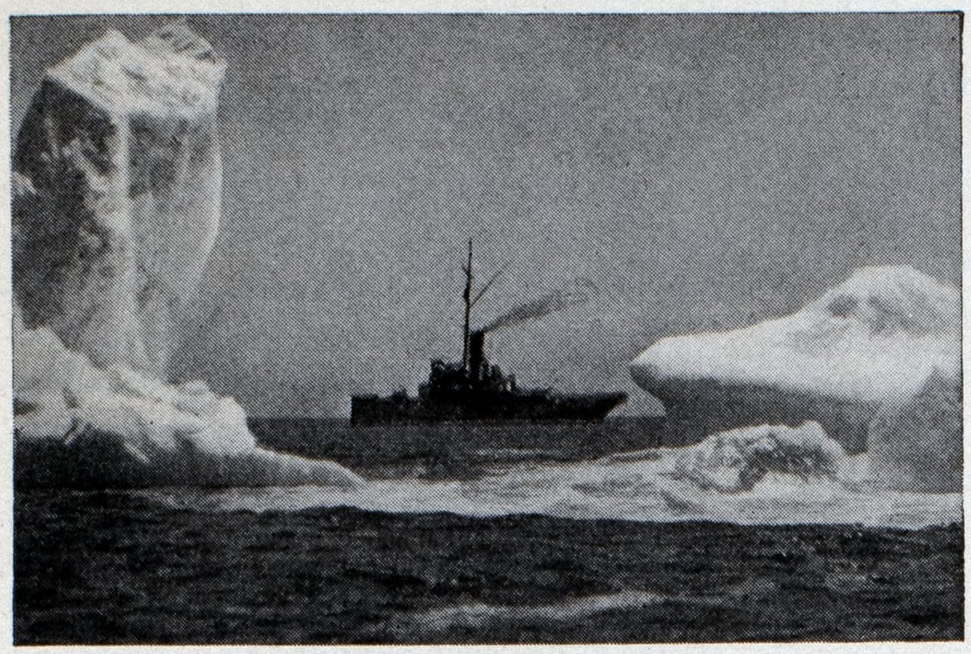
Extensive studies have been made by the canal operating companies on the types of vessels which will weather the frequently stormy waters of Lake Erie and at the same time be so constructed that they will be able

(*Continued on Page* 60)

TABLE V

Number of Motor Vehicles Shipped via Lakes by Several Manufacturers During Past Five Years

Company	1924	1925	1926	1927	1928	Total
Nash	1,558	2,338	1,655	1,845	2,594	9,990
Oakland	not known	3,536	12,749	19,517	25,003	60,805
White	361	501	702	485	218	2,267
Cadillac	not known	not known	1,657	2,545	2,326	6,528
Packard	1,152	2,906	2,846	3,703	5,015	15,622
Total	**3,071**	**9,281**	**19,609**	**28,095**	**35,156**	**95,212**



Revenue Cutter Miami Among the Icebergs on International Ice Patrol Duty

Depth of Water Determined by Sound and Echo

An Aid to Safety—In Thick Weather—While Ship Is Underway

PRACTICAL aids to safe navigation have been developed slowly through the ages since man first set out upon the sea. The protection of life and property are of first concern to the men who own and operate ships. Perhaps the most outstanding comparatively recent contribution to safety at sea is the electrically operated instrument, known as the fathometer, for continuously and accurately indicating the depth of water under the keel of the ship. This instrument in its early stages was successfully tried out on the passenger and freight steamer BERKSHIRE of the Merchants & Miners Transportation Co. and was described in MARINE REVIEW for October, 1924.

Much progress has been made since and the fathometer now fully perfected, is installed on many merchant ships among which are such notable vessels as the LEVIATHAN of the United States lines and on ships of the North German Lloyd, Cunard, Clyde, Eastern, United Fruit, Grace and Standard Oil Co. of N. J. fleets. Commodore H. A. Cunningham, commander of the S. S. LEVIATHAN, said of this instrument after a strenuous test since its installation on his ship. "So far as its usefulness in the matter of safety, it stands in a class by itself for there is nothing with which to compare it at the present time; it has brought the mariner's dream of paradise one step nearer."

Something of the history of the development of this remarkable instrument and a brief description of the manner of its operation is given here in the interests of safety at sea.

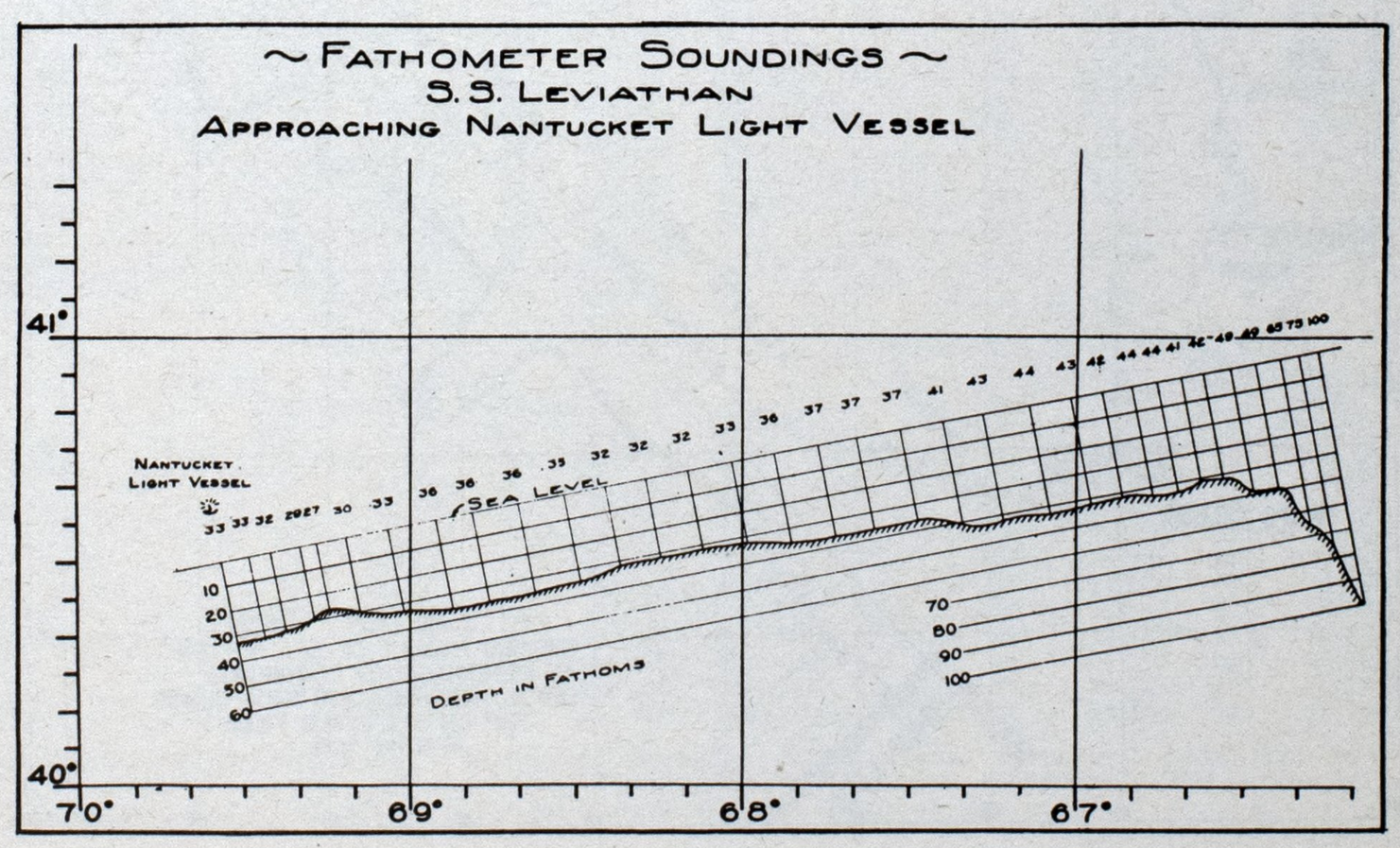
Fifteen years ago the original researches in depth finding in order to increase safety of navigation were undertaken off the Grand banks among icebergs which were the cause of the disaster to the TITANIC. In 1914 Professor Fessenden of the Submarine Signal Corp. created sounds under water with his oscillator and timed the return of echoes in depth sounding tests on the revenue cutter MIAMI during international ice patrol duty.

These original experiments gave promise of success for echoes were heard from great depths. Somewhat later, sound waves created by the Fessenden operator were echoed from the ocean floor near the Azores in 3000 fathoms of water, a distance of over seven miles down and back. In order to measure accurately the elapsed time between the production of an oscillator sound and the return of the echo, it was essential that great precision be obtained. Sound travels in water with a velocity of 4800 feet or 800 fathoms per second. In order to know the depth within a fathom, the measurement of the time interval must be accurate to within 0.0025 seconds. To realize such precision on a pitching ship proved more difficult than in a laboratory.

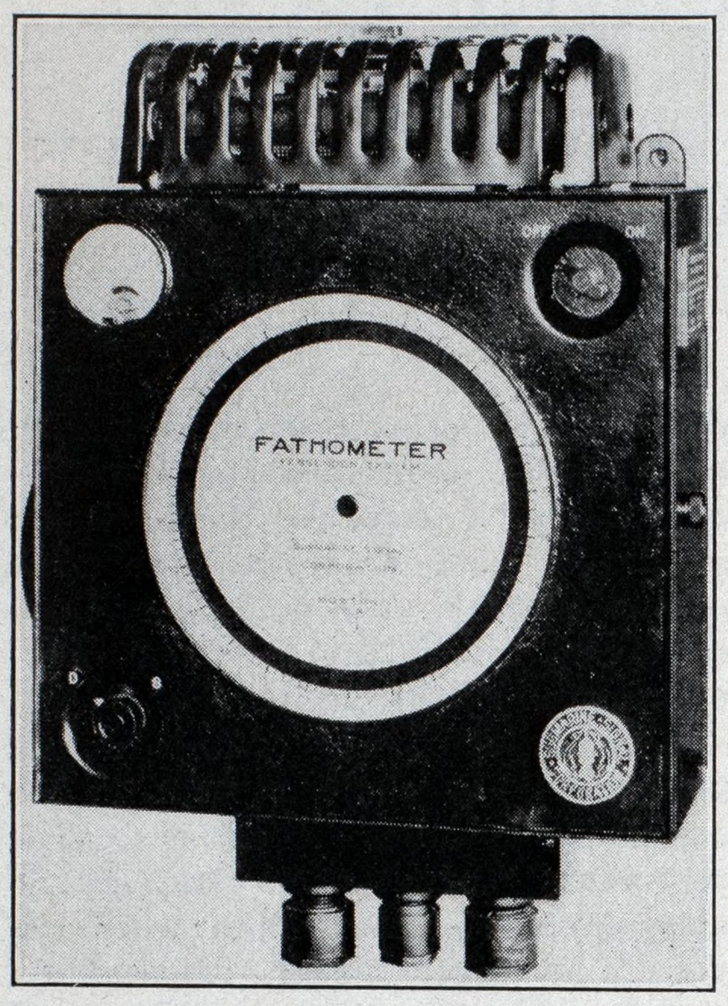
The fathometer equipment which incorporates the principle of echo depth sounding, is simple and rugged in construction. It contains three main parts; an oscillator which produces the sound, a hydrophone which receives the sound echo, and an indicator which controls the emission of sounds and translates the time interval between the sending and receiving of sounds into a visual measurement of depth on its dial.

This indicator is located in the pilot house or chart room and the navigator is thus informed either continuously or at such times as he may desire of water depth when the vessel is either under way or at anchor. The instrument indicates all depths accurately from 3 to 130 fathoms beneath the keel of the vessel and it eliminates the problem of time and labor in taking sounding. Vessels upon which it is now installed are also using it as a means for establishing their courses by charting the contour at the bottom, thus establishing submarine land marks as guides for subsequent voyages.

Early development work on the depth finder was actually started 10 years before the first instrument was installed on the LYDONIA of the coast and geodetic survey in 1925. It was presented to this bureau for a working trial in order to establish beyond question the accuracy and reliability



of this apparatus as a depth sounding device. Tests by the coast and geodetic survey demonstrated the instrument's reliability and accuracy so clearly that it has been installed upon the 10 largest vessels of its fleet. It is being used by the survey in the making of sounding charts with ex-



DEPTH FINDING INSTRUMENT FOR TAKING SOUNDINGS OF WATER UNDER KEEL

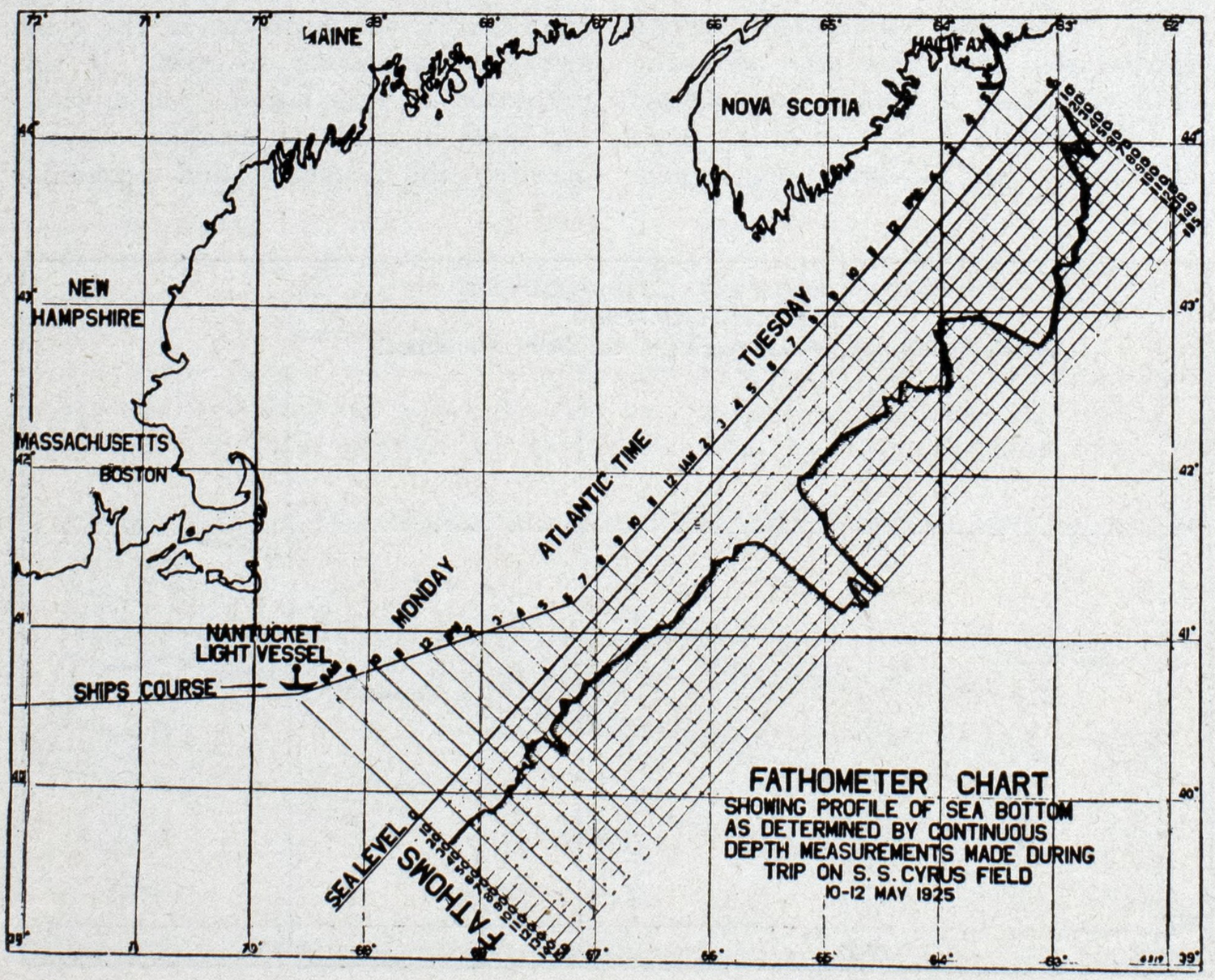
cellent results. Seventeen ships of the United States navy have already been fitted with the depth finder and installations on additional ships are being made. It is one of the peace time functions of the navy to promote improvements in ship design and navigation by careful investigation of new ideas and equipment. It was after thorough investigation and trial that the navy placed its approval on echo depth sounding.

Commercial cable companies are using the depth finder in cable laying and repair operations. The accompanying chart showing the contour of the sea bottom from Nantucket lightship to Halifax was made through the use of the fathometer installed on the S. S. CYRUS FIELD of the Westen Union Telegraph Co., in 1925.

On the Great Lakes the fathometer for depth finding is now successfully in operation on the steamer WILLIAM C. ATWATER of the Wilson Transit Co. and on the army survey steamer MARGARET. Many ocean going yachts have been fitted or are to be equipped with this echo sounding apparatus. Included among these are the elaborate yachts under construction for A. P. Sloan, Jr., C. F. Kettering and W. P. Fisher. These yachts are from designs by Cox & Stevens Inc. and John H. Wells Inc.

To Convert Eight Ships

On April 11 the shipping board decided to sell eight steamers for conversion to diesel propulsion to private owners for operation between West coast and Europe. Aid was promised the operator from the construction loan fund for conversion. Ships are to be 14-knot speed. Six of the vessels are of ABRAHAM LINCOLN type 12,980 tons deadweight. The other two of the COURAGEOUS type, 10,680 tons deadweight.



Order for Export Boats Is Reported Placed

For some reason as late as April 20, it was impossible to confirm a report that the Export Steamship Corp. had placed a contract with the New York Shipbuilding Co., Camden, N. J., for the four passenger and cargo vessels on which bids were received Nov. 5 last year. The low bidder at that time was Spear Engineers Inc., Norfolk, Va., and negotiations have been under way more or less ever since with this company in connection with the building of the four vessels. It now appears that negotiations have been discontinued with the Spear company and that a contract has been awarded to the New York Shipbuilding Co., said to total between $8,000,000 and $9,000,000 for the four vessels.

The principal particulars of the proposed new vessels are: Length, 450 feet; beam molded, 61 feet 6 inches; depth to shelter deck, 52 feet 3 inches; gross tonnage, 8200; deadweight tonnage, 9500; load draft, 27 feet 10 inches. A speed in excess of 14 knots with power in reserve is planned. The vessels are to be single screw and propulsion machinery will consist of a triple expansion turbine connected to the propeller shaft through single reduction gears. In order to get maximum efficiency, steam pressure is to be 350 pounds per square inch generated by four oil burning watertube boilers and with 150 degrees superheat.

An important feature will be one refrigerated cargo hold. Every convenience will be provided for efficiently handling cargo and for most comfortable service to passengers. It is expected that the first vessel will be ready by September or October, 1930.

Defiance Shows Speed

The diesel electric freighter DEFIANCE during a recent trial run off the Virginia capes reached a maximum speed of 16 knots in a six-mile spurt, exceeding all expectations. The vessel did better than 15 knots using less than full power. Details of her performance on her official trial run, which was to be held on April 23, are not available at this time. The DEFIANCE was converted to her present form of propulsion at a cost of $1,300,000 and is to be delivered to the Roosevelt Steamship Co., to whom she has been allocated by the shipping board.

Marine Business Statistics Condensed

Record of Traffic at Principal American Ports for Past Year

New York

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
March, 1929	576	2,428,002	599	2,587,030
February	534	2,345,973	550	2,391,154
January	528	2,416,692	543	2,385,658
December	554	2,369,709	559	2,342,928
November	516	2,237,046	550	2,418,097
October	596	2,666,360	589	2,571,403
September	545	2,424,887	543	2,362,154
August	580	2,533,877	622	2,733,727
July	602	2,526,107	564	2,415,168
June, 1928	537	2,386,509	602	2,645,954

Philadelphia

(Including Chester, Wilmington and the whole Philadelphia port district)
(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
March, 1929	117	309,233	81	203,080
February	98	263,790	56	163,324
January	86	243,505	63	187,612
December	106	309,214	72	213,261
November	88	229,598	36	89,931
October	91	250,902	48	137,352
September	84	238,234	43	122,389
August	96	266,104	58	161,365
July	101	254,378	60	143,573
June, 1928	101	270,069	72	183,534

Boston

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
March, 1929	90	305,532	59	209,077
February,	96	289,629	58	196,264
January	94	294,036	47	164,132
December	100	312,100	69	214,047
November	107	315,954	74	214,574
October	112	347,432	72	221,761
September	113	383,749	77	245,068
August	130	340,569	107	270,757
July	155	378,368	111	289,121
June, 1928	143	319,611	100	254,906

Portland, Me.

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
March, 1929	15	36,185	15	38,415
February,	19	46,400	17	46,121
January	20	59,830	21	61,434
December	25	61,251	25	62,930
November	20	37,250	19	33,408
October	23	39,959	22	40,588
September	30	53,338	30	51,018
August	30	48,256	28	47,078
July	38	68,208	38	66,389
June, 1928	30	40,255	25	33,834

Providence

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
March, 1929	5	19,121	5	21,902
February	2	5,891	4	17,323
January	7	24,095	4	17,289
December	6	20,741	8	32,974
November	10	35,147	9	20,551
October	6	14,667	9	20,551
September	5	18,895	3	12,777
August	7	28,611	4	19,978
July	8	26,920	7	25,451
June, 1928	8	35,177	7	25,741

Portland, Oreg.

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
March, 1929	45	170,528	64	232,651
February	35	137,304	48	181,425
January	....	.....	....	.....
December	39	144,128	56	205,572
November	30	115,469	53	198,195
October	42	154,623	62	224,018
September	41	150,368	57	203,758
August	35	136,504	47	172,693
July	30	111,042	46	157,354
June, 1928	23	85,328	40	144,572

Baltimore

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
March, 1929	131	401,217	138	426,539
February	127	397,147	132	410,667
January	126	386,102	122	372,302
December	127	392,832	134	400,355
November	134	412,100	134	417,523
October	133	402,263	131	406,142
September	119	374,500	128	396,749
August	133	404,303	144	440,016
July	128	378,827	121	353,758
June, 1928	127	392,580	135	412,620

Norfolk and Newport News

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
March, 1929	22	55,442	84	217,780
February	20	55,902	58	155,238
January	18	36,737	61	154,970
December	32	73,123	90	223,258
November	19	58,171	77	209,023
October	12	33,817	66	173,729
September	21	64,366	69	178,508
August	19	50,096	83	208,639
July	15	33,548	81	212,471
June, 1928	19	42,454	63	155,944

Jacksonville

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
November, 1928	26	64,406	27	67,621
October	23	55,147	22	53,094
September	40	89,032	42	94,981
August	37	85,186	34	83,694
July	30	81,634	31	79,222
June	26	54,449	28	57,111
May	26	58,800	28	63,779
April	26	68,581	26	61,939
March	25	65,435	28	68,630
February, 1928	31	70,881	28	58,896

Key West

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
March, 1929	77	82,370	76	96,935
February	84	104,667	73	90,947
January	82	98,373	79	99,243
December	79	79,816	72	79,354
November	98	81,666	101	82,863
October	120	111,450	116	106,139
September	84	60,079	86	62,698
August	91	73,771	89	69,532
July	86	65,838	88	67,720
June, 1928	98	83,417	93	78,006

Mobile

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
February, 1929	85	202,594	69	164,847
January	....	.....	....	.....
December	100	234,963	89	212,341
November	91	203,865	77	184,537
October	89	185,031	71	166,606
September	85	209,709	74	193,661
August	90	186,097	78	178,036
July	101	209,990	82	189,008
June	85	176,088	82	178,337
May, 1928	102	227,194	90	209,449

Seattle

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
March, 1929	57	234,394	59	248,901
February	53	222,462	55	225,789
January	60	242,464	73	290,077
December	62	249,729	63	259,823
November	68	285,564	75	306,605
October	62	245,420	60	243,778
September	57	229,718	66	254,503
August	55	220,858	53	228,378
July	64	261,850	58	228,946
June, 1928	44	180,482	44	185,765

New Orleans

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
March, 1929	283	773,515	298	517,632
February	248	682,052	249	675,432
January	273	710,969	282	744,078
December	274	762,019	260	690,010
November	252	690,157	263	716,105
October	259	682,184	329	627,989
September	228	617,636	248	661,643
August	264	667,055	265	690,341
July	260	659,457	245	615,234
June, 1928	253	615,672	263	640,136

Charleston

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net. tonnage	—Clearances— No. ships	Net tonnage
December, 1928	20	46,569	17	43,041
November	22	56,983	22	50,043
October	24	59,136	26	61,673
September	21	60,956	22	54,537
August	24	62,574	26	63,874
July	26	59,204	27	61,976
June	17	37,881	20	41,123
May	29	71,467	32	78,731
April	26	60,165	21	52,590
March, 1928	29	79,789	27	67,472

Galveston

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
March, 1929	33	62,486	77	221,143
February	37	96,127	81	256,077
January	45	133,396	106	347,297
December	45	129,285	107	355,592
November	49	150,205	109	351,063
October	41	110,825	135	420,534
September	26	69,433	98	313,816
August	31	91,959	78	261,804
July	41	91,686	68	196,424
June, 1928	20	52,884	64	210,110

Los Angeles

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
March, 1929	177	572,573	180	523,807
February	150	470,851	157	484,043
January	193	581,357	191	536,504
December	199	551,301	154	487,064
November	209	541,906	179	514,647
October	221	568,910	216	515,889
September	188	504,630	189	482,133
August	164	539,454	160	514,978
July	153	547,612	131	485,817
June, 1928	152	434,811	114	428,885

San Francisco

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
March, 1929	176	655,851	174	692,407
February	153	603,008	130	484,085
January	135	587,423	142	560,239
December	155	607,902	152	582,612
November	157	504,269	157	589,810
October	165	620,117	155	596,750
September	180	623,999	175	579,262
August	185	674,832	164	643,965
July	147	662,437	122	454,802
June, 1928	149	567,839	141	539,600

Port Arthur

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
July, 1928	24	78,538	33	109,230
June	25	80,481	25	79,758
May	27	92,323	28	90,108
April	24	73,693	26	88,253
March	46	127,039	47	131,741
February	47	144,273	44	144,508
January	20	69,947	20	72,185
December	23	67,105	21	68,602
November	21	64,277	25	80,084
October	18	50,632	25	82,177
September, 1927	16	51,492	29	83,728

Note: The figures given in this table are for direct entrances and clearances. Additional vessels in foreign trade enter and clear from and to other American ports after original entry and before final departure. At the port of Philadelphia, for instance, additional vessels in the foreign trade in this category were 52 of 182,435 net tons entered and 77 of 274,863 net tons cleared for the month of March.

Up and Down the Great Lakes

Lake Diversion—Pick-Up Freight Service—March Lake Levels—Expect Shipping Record—May Raise Rate—Welland Canal Opens

FOLLOWING a hearing in Chicago late in March before Charles Evans Hughes, as a special master in chancery for the United States Supreme Court, to determine further needs in sewage treatment works and for lake diversion for the Chicago sanitary district, the complainant six lake states in the Lake Michigan diversion case submitted testimony at another hearing in Washington. The six lake states also presented briefs for Mr. Hughes to take to Europe with him when sailing for Geneva, Switzerland, on May 1. It is expected that the case may be acted upon by the Supreme Court before the June adjournment.

The rebuttal testimony from the Chicago sanitary district was presented at the Washington hearing, and the six lake states closed the case before Mr. Hughes. Difference of opinion was voiced as to the time needed for construction of sewage treatment works at Chicago. A Cleveland contractor testified that the plant now under way could be completed in 1500 calendar days or 950 working days.

At the Chicago hearing preceding the sessions in Washington, testimony showed the sanitary district already has spent $84,000,000 on sewage treatment and it was estimated that it would have to spend from $25,000,000 to $200,000,000 for more plants.

Pick-up Freight Service

Beginning April 18 the steamers of the Cleveland and Buffalo Transit Co. will operate daily between Cleveland and Buffalo. In announcements, the company calls particular attention to the store-door pick-up and delivery service available at Cleveland and Buffalo and the principal manufacturing and consuming centers in Northern Ohio and Western New York. The rates for this service via the Cleveland and Buffalo line reflect, according to the company, additional savings and offer opportunity for business expansion into new territory.

According to the new plan free pick-up and delivery service will be given shipments of 5000 pounds or more when rated second class or higher and to shipments of 10,000 pounds when rated third class or higher, moving locally between Cleveland and Buffalo. Dependable service is extended in connection with bonded motor freight lines serving Northern Ohio and Western New York on the basis of all-rail rates which include free pick-up or delivery at the points served by them.

A folder put out by the Cleveland and Buffalo Transit Co. explains the service and savings to its patrons.

March Lake Levels

The United States Lake Survey reported the monthly mean stages of the Great Lakes for the month of March as follows:

Lakes	Feet above mean sea level
Superior	602.49
Michigan-Huron	580.66
St. Clair	575.63
Erie	572.47
Ontario	246.15

Lake Superior was 0.03 foot higher than in February and it was 0.76 foot higher than the March stage of a year ago. Lakes Michigan-Huron were 0.10 foot higher than in February and they were 1.70 feet higher than the March stage of a year ago, 1.56 feet above the average stage of March of the last ten years. Lake Erie was 0.38 foot higher than in February and it was 1.02 feet higher than the March stage of a year ago. Lake Ontario was 0.22 foot higher than in February and it was 0.18 foot higher than the March stage of a year ago, 0.89 foot above the average March stage the last ten years.

Expect Shipping Record

Records in Great Lakes shipping are expected to be established this season. With an early opening of the navigation season, bulk freight will continue to move in increasing volume, lake transportation men state.

No vessel building is being planned by the lake transportation companies as there is sufficient vessel capacity available for needs in immediate prospect. The factor of dock efficiency, which has shortened loading and unloading time by 50 per cent and more, has tended to add in effect greater carrying capacity to the fleets in recent years. Bulk cargoes now can be unloaded in as little as 12 hours, permitting the carriers to shorten the round trip by one or two days and thus add several extra trips each season.

About 35 grain boats with an aggregate cargo of nearly 8,500,000 bushels of Canadian grain were loaded and awaiting at Fort William and Port Arthur the opening of navigation on April 15. Grain stores of 72,230,000 bushels of wheat were reported at Fort William in addition to 13,500,000 bushels of other grain. Duluth supplies also were heavy, and much grain was reported in Minneapolis.

Negotiations have been closed for shipments of pig iron from Buffalo to Chicago and Milwaukee, but it is not indicated that the movement will come up to the totals of each of the last two years.

Freight shipments started on the Great Lakes early in April this year. The Welland canal was opened on April 18. The Nicholson Universal Steamship Co. started loading several ships with automobiles at Kenosha, Wis., and Detroit at the beginning of the month, and shipments from Detroit were active in the opening weeks last month. Great Lakes package freight business was opened April 20.

May Raise Carrying Rate

According to reports, there is some indication that grain carrying rates on the Great Lakes are to be increased this season. It is thought that the increase may amount to one cent per bushel even though some companies have arranged to carry grain at the last season rate of three cents a bushel. A statement has been made that a charge of four cents a bushel will be made for carrying grain from the head of the lakes to American lake ports.

E. T. Butler, former traffic manager of the Trumbull Steel Co., Warren, O., and more recently manager of Moore & McCormack, Inc., Cleveland, has been made traffic manager for the Cleveland district, for D. Sullivan & Co., Chicago vessel operators and brokers. Mr. Butler is to have an office in the Terminal Tower building, Cleveland.

Welland Canal Opens

Notice has been issued by L. D. Hara, superintending engineer of the Welland canal, St. Catherine, Ont., that commencing with the opening of navigation in 1929 and thereafter all vessels whether upbound or downbound must use the new ship channel at Ramsey's bend. This new canal is located west of the present one and joins it at distances of one mile and one and a half miles north of Humberstone Bridge. Fifteen feet draft for navigation will then be provided. At this point, the former channel has been filled with rock and is therefore not navigable. The east side of the channel is to be definitely marked by three black buoys which are to be placed at both junctions of the new ship canal with the present one.

The first grain cargo of wheat from Fort William for the 1929 season, arrived in Buffalo April 20 aboard the steamer MORRIS S. TREMAINE of the Eastern Steamship Co.

Boats Slightly Damaged

Slight damage occurred to the vessels MARTHA E. ALLEN, SPARTA and LOUIS HILL April 16 at Lorain when a strong northeast wind swung the MARTHA E. ALLEN into the two other vessels which were moored at the Baltimore & Ohio docks. The MARTHA E. ALLEN was in tow of two tugs—when the gale caught her and forced her against the sides of the other two vessels. One plate of the MARTHA E. ALLEN was slightly damaged.

To Use Flying Boats on Great Lakes

THE Stout-Detroit & Cleveland Air Lines Inc. has been incorporated for the purpose of establishing flying boat service between Detroit, Cleveland and Buffalo, supplementing the steamship service between these cities of the Detroit & Cleveland Navigation Co. Regular daily service is expected to be in operation during the summer months of 1929. The new organization proposes to operate airplanes and hydroplanes from Detroit to Cleveland and Buffalo. Officers of the company are all well known Detroit, Buffalo and New York business men. They are: A. A. Schantz, president; William B. Stout, vice president; Walter F. Stafford, vice president; Stanley E. Knauss, secretary, and E. S. Evans, treasurer.

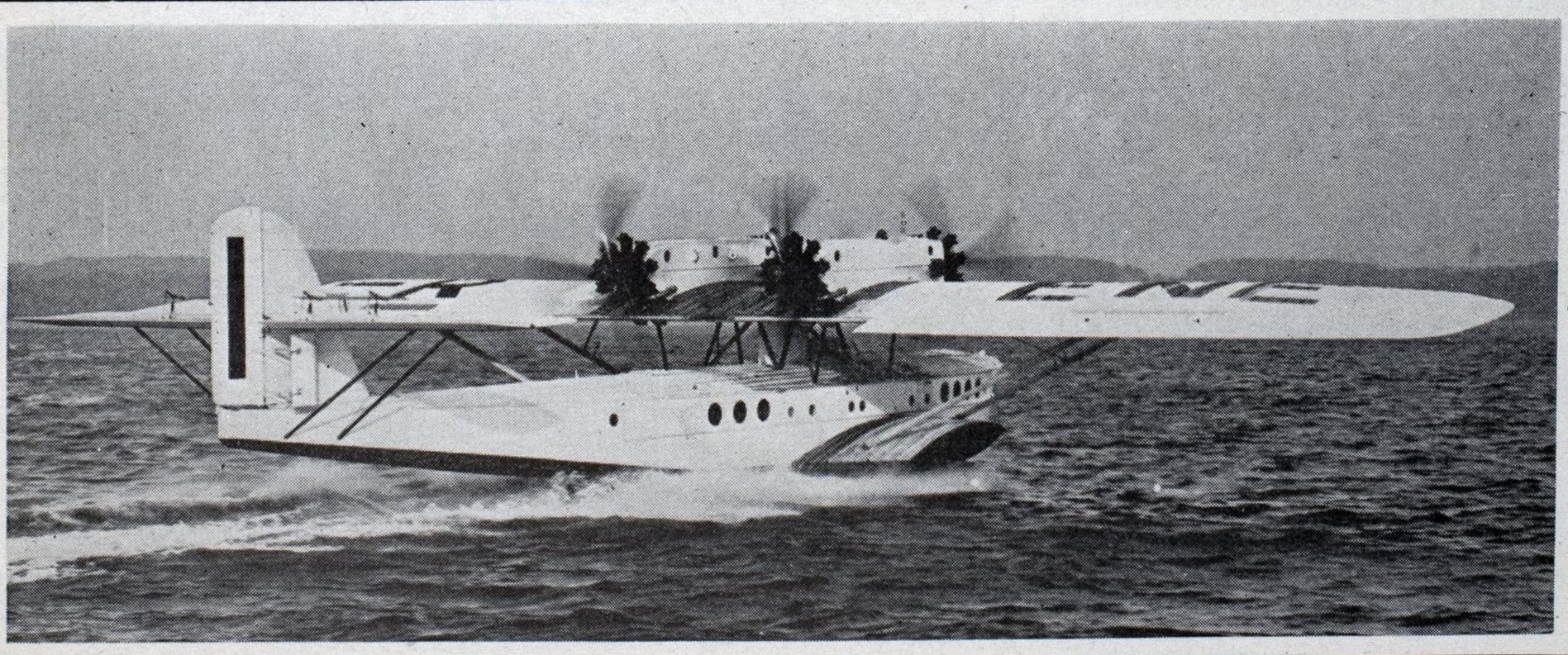
It is planned to operate flying boats on the Detroit, Cleveland and Buffalo route this summer as this type of aircraft is regarded by officials of the company as being the best for overwater transporation and has been employed in commercial work in Germany and other European countries for a number of years with great success.

All-metal construction is employed throughout in these flying boats. The wings, spars and other highly stressed units are made of alloy steel; the balance of the structures are of duralumin.

Passenger cabins have a capacity of 25 passengers, also large baggage room and lavatory. These cabins are so large that there is no restraint on the passengers' comfort while seated. The cabins are heated by warm air from the radiators and can be kept at normal indoor temperatures even in very cold weather.

The pilot's cabin, which is fitted with two seats and dual control, is situated above the forward cabin. The pilots' seats are adjustable to their heights and offer, owing to the low position of the boat's side, uniformly good view for landing on the water. The instruments and navigating appliances and the power units can be easily seen and operated from both seats. The instruments are fitted with luminous figures and pointers for night flying. On the starboard side adjoining the pilot's cabin, is situated a wireless room with ample space for a sending and receiving set having a range up to 500 miles. The position close to the pilot's cabin makes it possible also to operate it by the second pilot or mechanic.

The Dornier-Super-Wal flying boats, which are to be used in this service, are equipped with four 500-horsepower motors. They have a wing span of 100 feet; wing area, 1570 square feet; wing chord, 17½ feet; overall height, 17½ feet; overall length, 82 feet; hull beam, 11½ feet; hull height, 7½ feet; seating capacity, 25 people; and normal fuel capacity, 1100 gallons. The performance of the plane is as follows: High speed, 130 miles per hour; weight empty, 15,000 pounds; maximum useful load, 15,000 pounds. Flying range with 25 passengers is 1250 miles, and 2500 miles without.



Dornier-Super-Wal Flying Boat of the Type Which is to be Used to Supplement Steamship Service on the Great Lakes between Cleveland, Detroit and Buffalo

Patents Show Marine Development

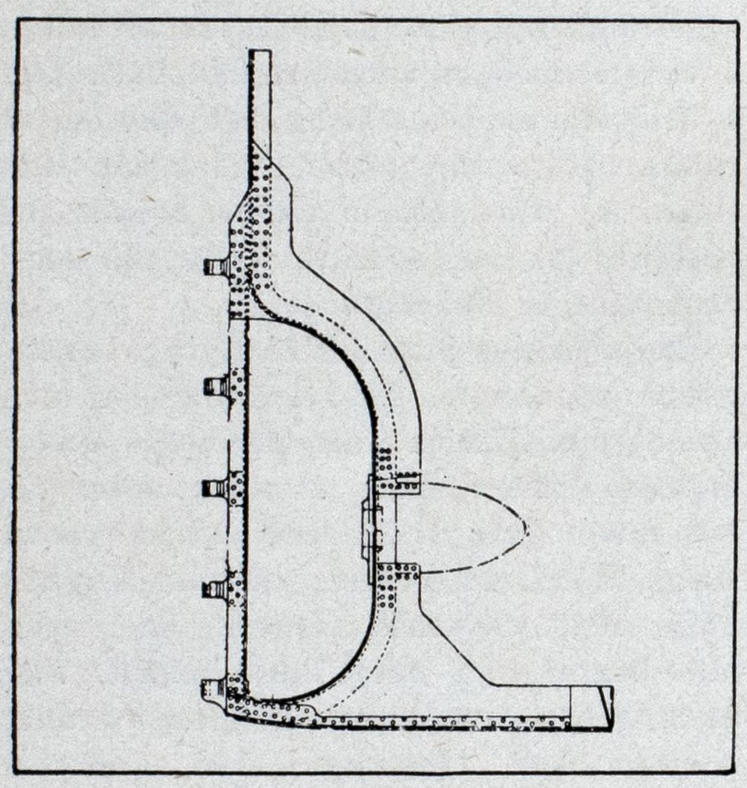
Latest Marine Inventions Described

Specially Prepared for Marine Review
By Richards and Geier

Patent Attorneys, 274 Madison Avenue, New York

THIS invention relates to the manufacture of ships' stern-frames and its object is to reduce the cost of such manufacture compared with the cost of making stern-frames, as at present, by casting or forging.

According to the present invention, a ship's stern-frame is a compound structure, being wholly or partially built of iron or steel members of roller section secured together by riveting and/or welding.

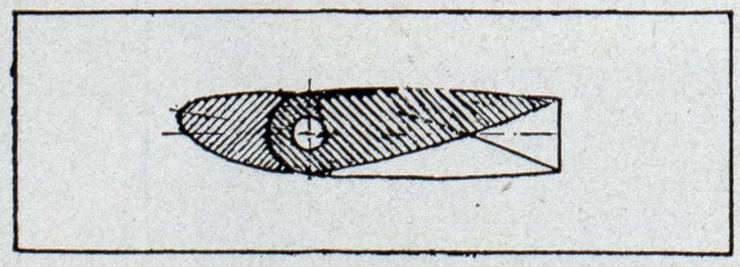


SHIP'S STERN FRAME

U. S. Patent No. 1,706,093, issued Mar. 19, 1929 to William Wingate, of Barrow-in-Furness, England.

IT IS known that the oblique column of water thrown by the screw, in single screw ships, always renders necessary a slight deflection of the rudder for the purpose of maintaining a course straight ahead. Efforts have therefore been made by means of guiding devices, such as guide blades and the like fitted to the post, to impart to the screw water stream a guidance in the direction of its rotation. Such blade-like devices are, however, very sensitive.

In contrast thereto the applicant arranges in the simplest manner a stationary guide body which constrains the stream of water to give up its rotary direction of movement and flow towards the movable rudder body.

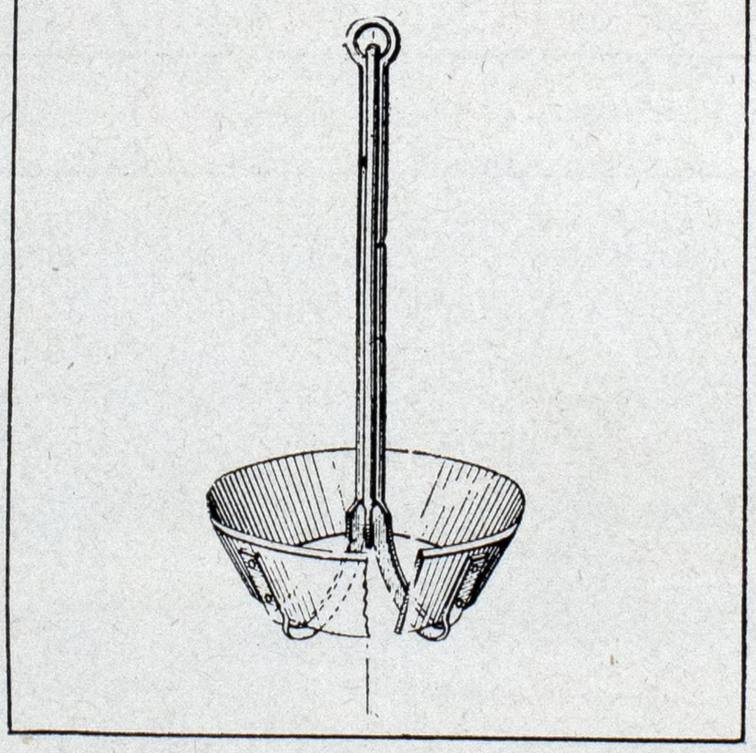


TWO-PART RUDDER FOR SHIPS

U. S. Patent No. 1,705,133, issued Mar. 12, 1929 to Max Oertz, of Hamburg, Germany.

WE HAVE made arrangements with the patent attorneys Richards & Geier, to publish data relating to letters patent issued in the United States covering inventions which may be of particular interest to our readers. The patents described, some of which have accompanying cuts partially illustrating the inventions, are all of recent date and we are planning, in subsequent issues, to publish similar information on patents pertaining to various phases of marine development work. Should our readers be interested in obtaining a printed copy of any of the patents appearing in this issue, or any other patent desired, such copies may be had by addressing request to the editor or directly to the contributors of this page.

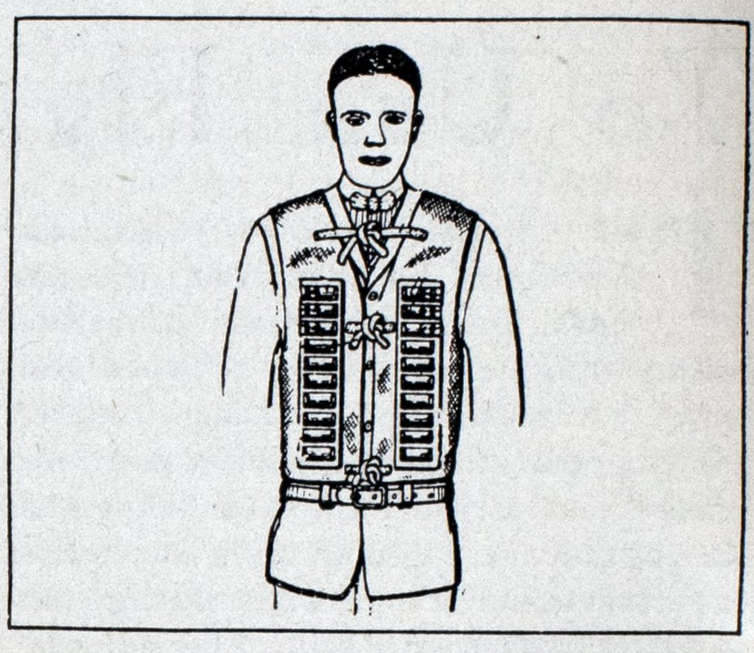
THE invention contemplates the provision of a frustum member of hollow construction and open at its ends which constitute the fluke, with a plurality of arms secured at their ends to the wall of the fluke or frustum member, and extending through the central portion thereof, from which the arms extend on a line with the diametrical center of the fluke from the end of the greatest width, to provide a shank.



ANCHOR

U. S. Patent No. 1,705,335, issued Mar. 12, 1929 to Edward F. Owen, of Cape Girardeau, Mo.

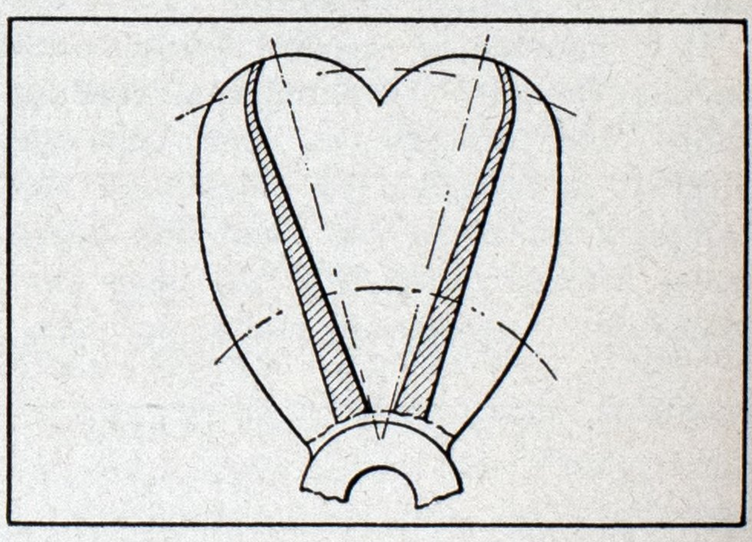
THIS invention relates to improvements in life preservers, more particularly of the sleeveless garment type, and aims primarily to provide a life preserver the buoyancy of which may be rapidly and readily adjusted and selectively regulated to support any weight of wearer.



LIFE PRESERVER

U. S. Patent No. 1,704,368, issued Mar. 5, 1929 to James Murphy, of Seattle.

THE invention is a propeller in which the blades are provided with double threads at the tips and has for one object to provide a propeller with the blades so formed that as the revolutions are increased it will operate with less slip and prevent cavitation and torque.

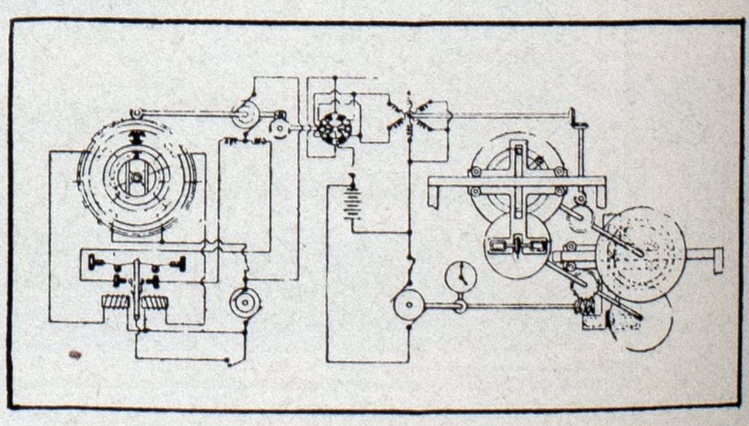


SCREW PROPELLER

U. S. Patent No. 1,703,412, issued Feb. 26, 1929. George H. Thompson, of Seattle, assignor to Thompson Propeller Securities Co.

THIS invention provides an apparatus for readily determining at any time the then distance from the ship to the set path.

The apparatus affords a path-and-position indicator, and comprises a magnetic compass.



NAVIGATING APPARATUS AND METHOD

U. S. Patent No. 1,704,250, issued Mar. 5, 1929 to Edward L. Holmes, of New York, N. Y.

New Calmar Motor Ships

Construction of four motor ships of about the same type and size as the CUBORE and with a loaded speed of 15 knots, it is reported, are to be built for the Calmar line, for operation in the intercoastal service. Two of the vessels, it is understood, will be built at the Fore River plant of the Bethlehem Shipbuilding Corp. and two at the Union Iron Works plant at San Francisco. The line is now operating the six former Garland line vessels, supplemented by the CUBORE, in a fortnightly service from coast to coast, and the addition of these vessels would put the line in advance of any of the other cargo lines in the trade in point of speed.

Elected Vice Presidents

J. H. Philbin and W. L. Bunker have been elected vice presidents of the newly organized United States Lines Inc., organized by Paul W. Chapman, to develop and operate the United States and American Merchant Lines which have been purchased by the United States Lines Inc.

Diesel Liner for South American Run

WITH the sailing of the new twin screw motorship SANTA INEZ on April 20, the Grace line inaugurated a new fast and direct service between New York, the Panama canal and ports on the Pacific coast of Colombia and Guayaquil, Equador. A sistership, the SANTA RITA will follow the SANTA INEZ.

This will be the first direct passenger service from New York to Buenaventura, Colombia and Guayaquil, Ecuador and the run to the first port will be shortened to eight days and that to Guayaquil to twelve.

After calling at Colombia and Ecuador the SANTA INEZ and the SANTA RITA will call at Peruvian and Chilean ports down the West coast as far as Valparaiso, Chile.

These new motorships are of 9000 tons displacement, 370 feet long, 53 feet beam, with twin screws driven by diesel engines developing 4700 indicated horsepower. Both engines and hulls were built by Burmeister & Wain Ltd., Copenhagen, Denmark.

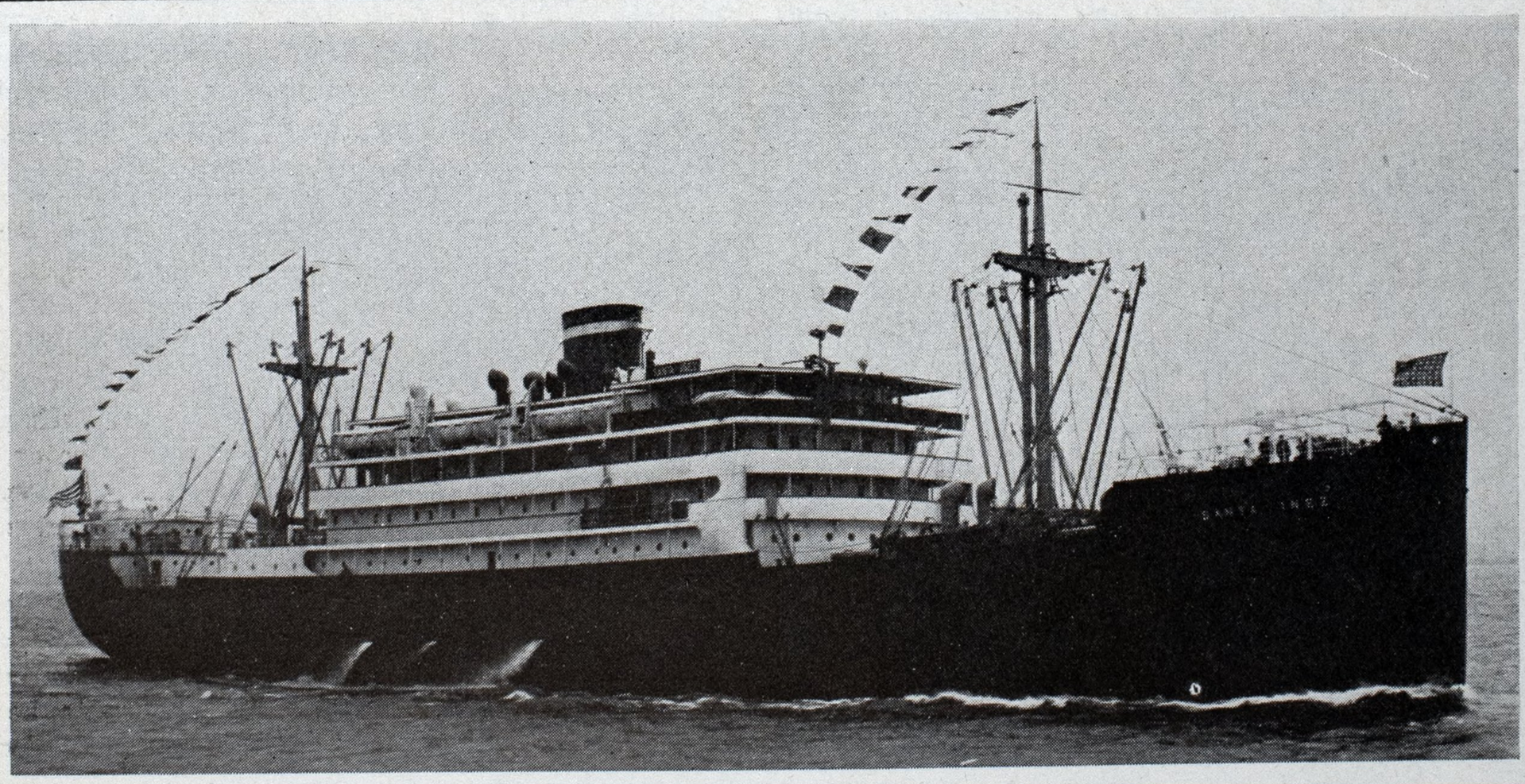
There are four decks with first class passenger accommodations for 70 persons and accommodations for 48 intermediate class passengers. The vessels will maintain a service speed of 14 knots and carry 5100 tons cargo.

A swimming tank, space for golf practice, wide decks for dancing, sports, or the deck chair siestas are interesting features of the ship arrangement. On the promenade deck are situated the social hall, lounge, smoking room and veranda cafe. There are no inside staterooms and beds instead of berths are the rule.

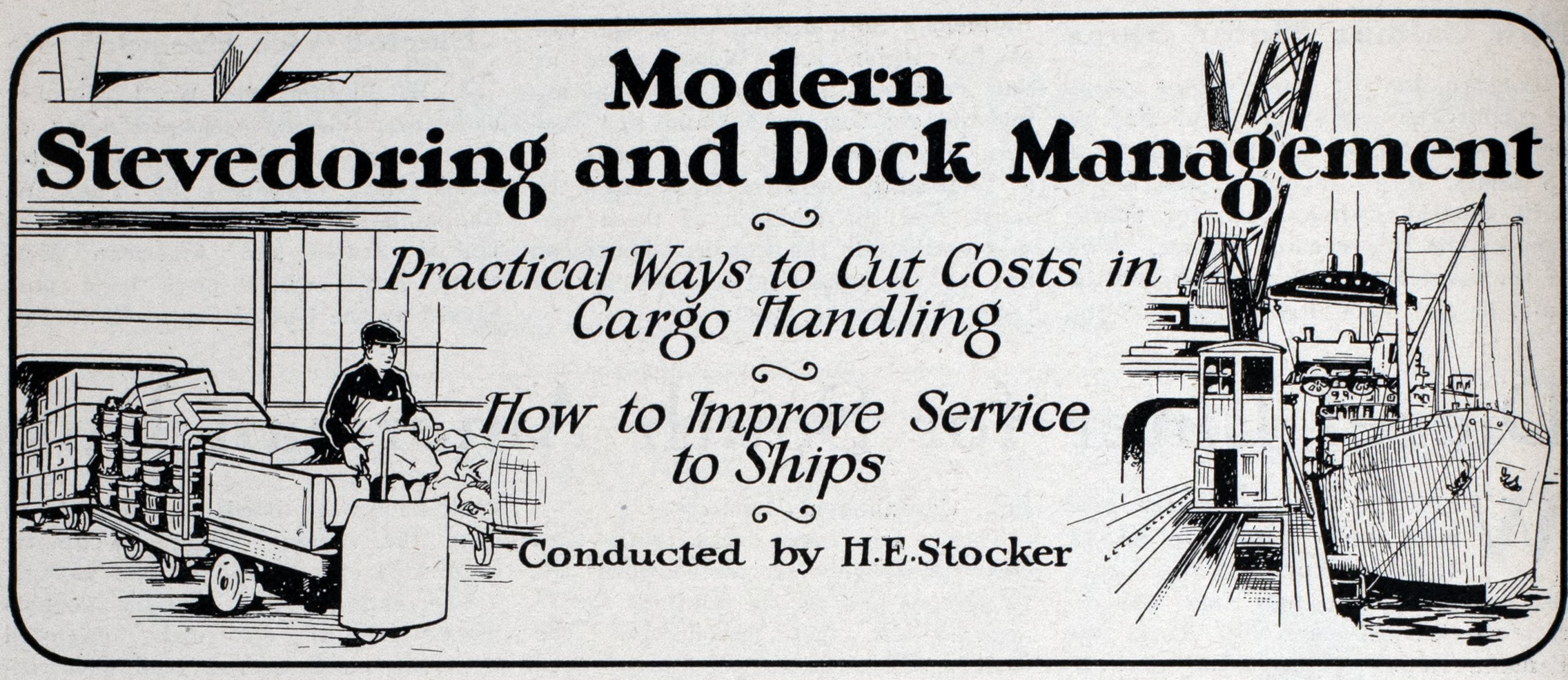
The SANTA INEZ has a cruiser stern and straight stem; the hull is subdivided by complete watertight bulkheads and insulated chambers are provided for carrying the ship's provisions as well as fruit and other perishable freight. Plumbing, heating, sanitary and ventilation fittings are of the highest class and the thermotank punkah louvre system of ventilation is fitted throughout to meet the varying range of climatic conditions experienced on the voyage.

The culinary and laundry departments are all electrically operated with the most modern equipment including electric cooking ranges both for passengers and crew. There is a purser's bureau and a barber shop and ample baggage, mail, bullion and storerooms are provided. Special thermostatic electric fire detectors are installed throughout the cargo space as well as the passenger accommodatons and a complete chemical fire extinguishing system is fitted throughout the vessel in compliance with American shipping regulations.

Deck machinery is all electrically operated. There are nine winches and four hatches with especially large openings for the easy loading and discharge of cargo. The SANTA INEZ is built to comply with the highest standards of the United States and Lloyds' regulations.



New Twin Screw Diesel Passenger and Freight Vessel Santa Inez Enters Service to South America

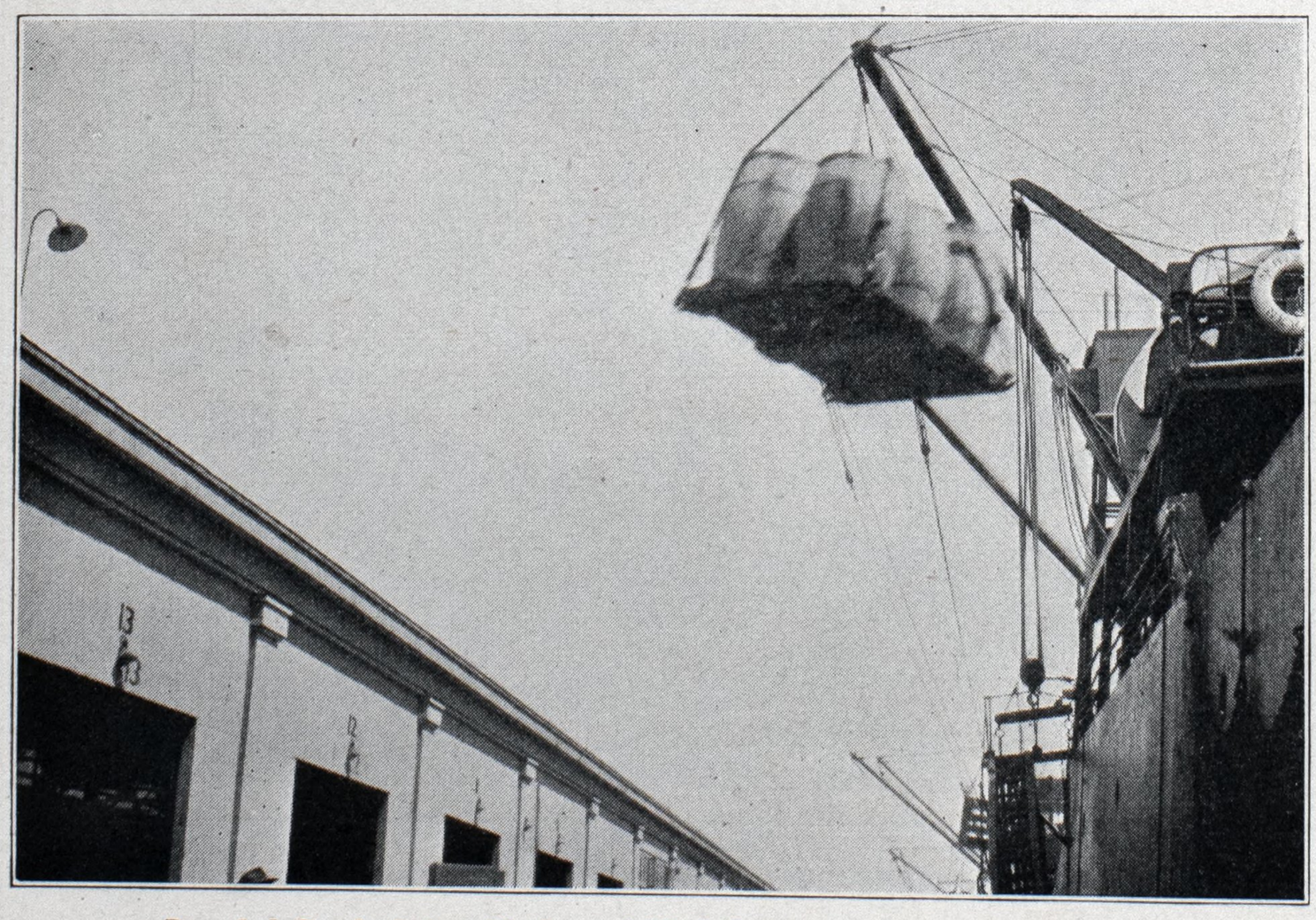


By Standardizing Sling Equipment Handling Costs Can Be Reduced

PLATFORMS, airplane slings, dishes, and trays, are some of the names used at various ports to designate a type of sling which in this article will be referred to as a platform sling. Fundamentally, all the slings are the same, and to avoid confusion a common name should be agreed upon.

There is more of a difference in the size of slings and their manner of use. Slings range widely in dimensions. One sling is 4 by 9½ feet, another 2 by 12 feet, and a third 6½ by 4 feet 4 inches, and so on. Not only are slings of different dimensions used by various companies, but at different ports of the same company. There is no need for a sling 6 feet 10 inches by 4 feet at Baltimore, and one 3 feet by 6 feet at Philadelphia. The class of cargo and the docks are practically the same at both ports; the ships are exactly the same. One company used eight different variations of platform slings, yet good authority says only two are necessary.

Variation in use as well as in dimensions is found. On some docks at the present time one finds cargo going into number one hatch with a net sling and the same class of cargo going into number four hatch on a platform sling. On other docks several different sizes and types of platform slings are to be found in use. Cargo will be loaded into a ship with one type of sling and unloaded with another type. Soda ash is loaded by canvas slings and is discharged on platform slings. On one dock at Baltimore, instead of a platform sling, a trailer is hoisted overside. At New York, skid platforms constructed of steel and wood are being used in the same manner in handling freight from New York Central railroad lighters. At this same port one steamship company is experimenting with steel and wood skid platforms for hoisting cargo from ship to dock and for handling cargo on the dock.



Barreled Goods Being Discharged With Platform Sling at Los Angeles

One company loads frail fiber cases with a net sling, while another company uses a platform sling for the same class of cargo. One or the other method is the one best way. This should be determined and should be followed consistently.

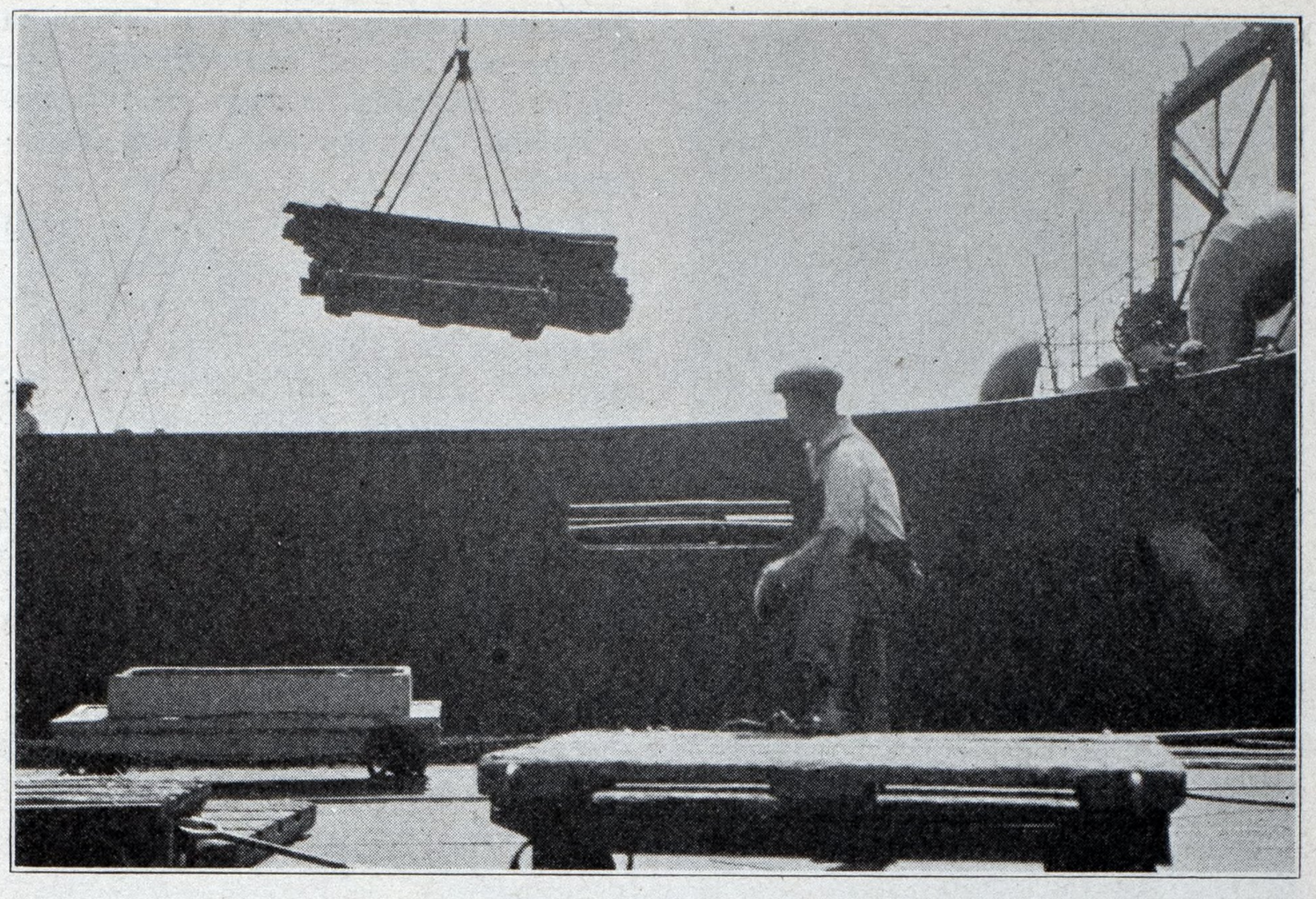
Is such a diversity of design and use necessary? The usual answer is that conditions are different. Often conditions may appear to be controlling although an open minded investigation will indicate that this is assumed rather than known. Although conditions are different between various factories manufacturing wide vari-

eties of products, that has not prevented the adoption of standards, that is finding the best equipment and the one best way of using it. When the product manufactured cannot be standardized, details of the product can often be standardized and the result is essentially the same.

There is a wide variety of automobiles produced. The Society of Automotive engineers has probably adopted more standards which are in use by its members than any other organization, but these cover such details as bolts, nuts, standard connections for brake rods, and standard sizes of wheels and rims.

The most important point is whether controlling conditions are different. A dock at Bayonne, N. J., handling case oil, cannot use a platform sling successfully. A 4½ foot by 7-foot platform sling handling bulky cases and tires cannot be used in loading freight from many lighters because the lighter hatch is too small. Conditions such as these are controlling. The first step toward standardization is using one type of sling for one commodity. Some companies have taken the next step and have standardized on one or two designs of platform slings. A Philadelphia stevedoring company discontinued using a variety of slings and standardized on one sling 3 feet by 6 feet. They have found this standard size an advantage over the many different sizes used formerly. The new sling handles all cargo formerly handled by slings ranging from 2 feet by 4 feet to 4 feet by 7 feet.

Another stevedoring company uses two different sizes —4½ feet by 6 feet and 4½ feet by 7 feet, the latter for handling bulky packages and tires.

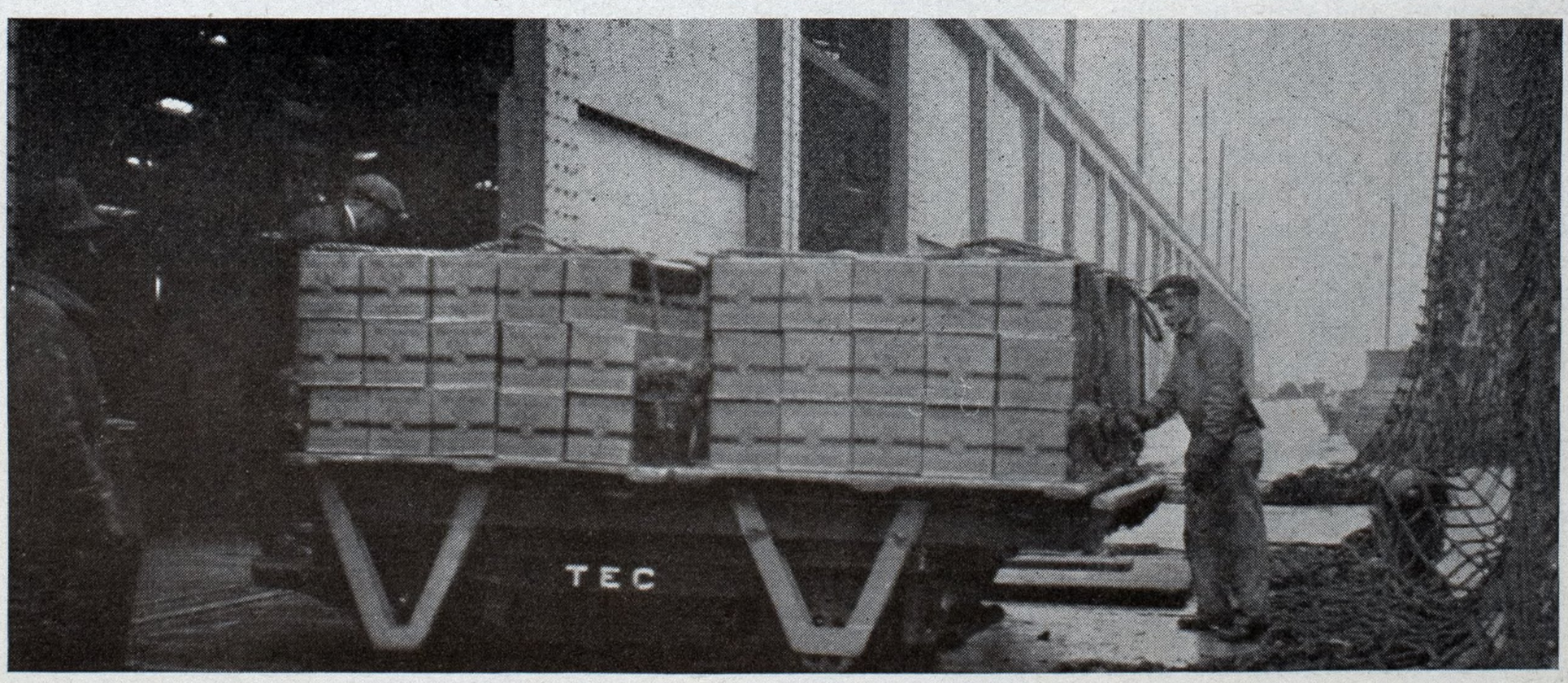


Platform Sling Used in Discharging Metal Lath at Los Angeles

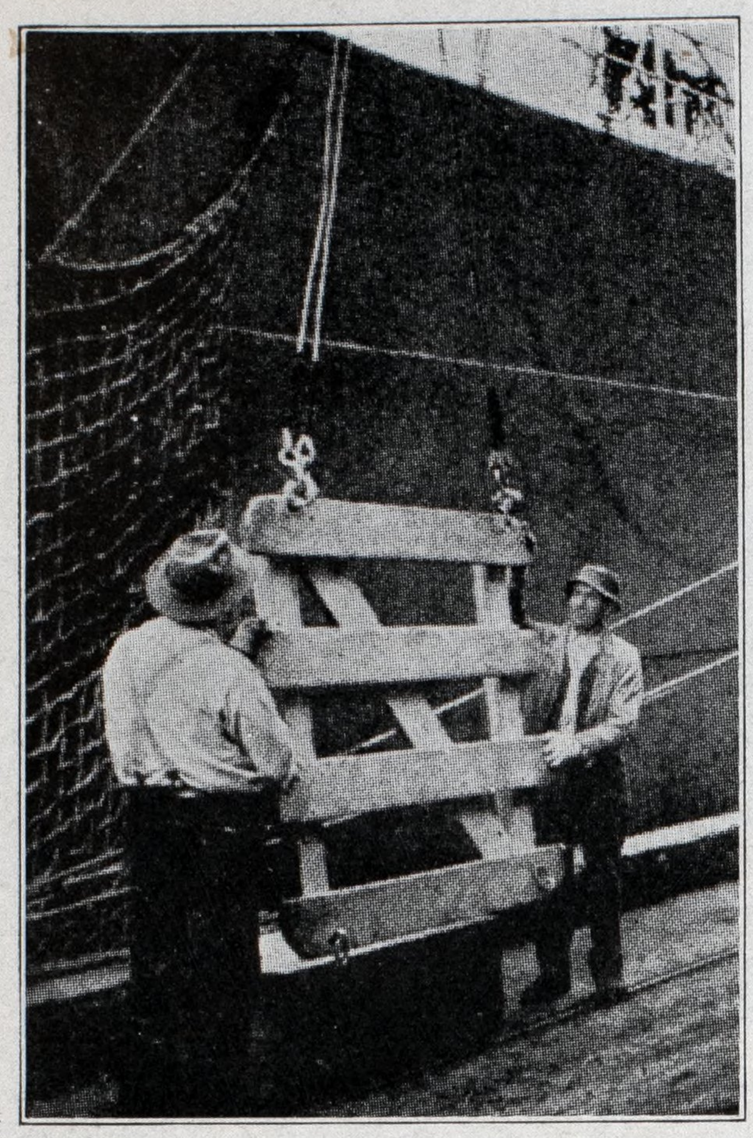
In arriving at a standard it is best to adopt one which has the widest possible use, therefore a study should be made of the same equipment or similar equipment used in other industries. If it is possible for the shipping industry to standardize on equipment, or details of equipment, used in a large number of industries, the advantages of mass production will accrue to shipping to a greater extent than if a standard applicable only to shipping use were adopted.

Standardization and simplification have been recognized for years as fundamental to mass production. This exists only when a large quantity of articles are produced of exactly the same kind. Mass production results in a low unit cost by permitting purchasing in large units, by making continuous production possible, by permitting use of expensive but highly productive equipment, by reducing the variety of necessary tools, by reducing the expense of design and by making possible the employment of high salaried experts and executives.

The program of the department of commerce since 1922 in assisting industries in simplification and standardization, has been widely approved and has resulted in vast savings to American industry. The department has done its greatest work in the first step toward standardization, that is, simplification or the reduction of variety. The process has been one of selection of existing articles, rather than the creation of new articles. Market fruit baskets were decreased from 31 to three, metal lath from 125



Two Platform Slings Loaded With Canned Goods Brought to Ship's Side by a Lift Truck



PLATFORM SLING USED IN NORTHWEST

to 24, hotel chinaware from 700 to 160, files and rasps from 1351 to 496, and so on. Over 100 simplified practice recommendations have been carried through by the department and the list of acceptors totals more than 12,000 firms and 1000 trade associations.

Working in conjunction with manufacturers and users of skids and lift trucks, the department of commerce last June established standard clearance heights and inside width of skids and lift trucks. A project is under way to simplify over-all dimensions. One manufacturer of all steel skids is hopeful of reducing the number of varieties of skids manufactured from 148 to 10.

A preliminary investigation indicates that these steel skid platforms can be readily adopted for use as platform slings. This would make it possible for stevedores and shipping companies to obtain the advantages of standardization, simplification and mass production. These platforms are stamped out by the thousands. One automobile company has bought over 10,000 steel skid platforms, another manufacturer over 13,000. When the simplification and standardization program is worked out still further, the possible advantages to the shipping industry will increase.

Steel platforms can be obtained in various sizes from $6 to $10 each. A hook or similar arrangement for hoisting may be added at a cost of $1.50, making the total cost $7.50 to $11.50 as contrasted with $20 to $25 each for wooden platform slings built by a stevedore or the stevedoring department of a steamship company. The actual cost is probably greater, but the actual cost is difficult to determine as accurate records are not kept, and capital charges, storage and other costs are not known, or are disregarded.

If the cost of a platform sling could be reduced to $7.50, and the maintenance and repair costs practically eliminated, the total savings would be very attractive. In addition to the reduction of the initial cost by between 60 and 65 per cent and the reduction of repairs and maintenance, the use of a sling of the best known design would, in many cases, reduce cargo handling costs, reduce loss and damage to cargo, and expedite dispatch of ships.

This steel platform sling is extremely strong, due to the corrugations. The weight capacity per square foot is more than the weight capacity per square foot of a wooden sling. The platform is constructed of copper alloy rust resisting steel, and the maintenance and repairs amount to practically nothing.

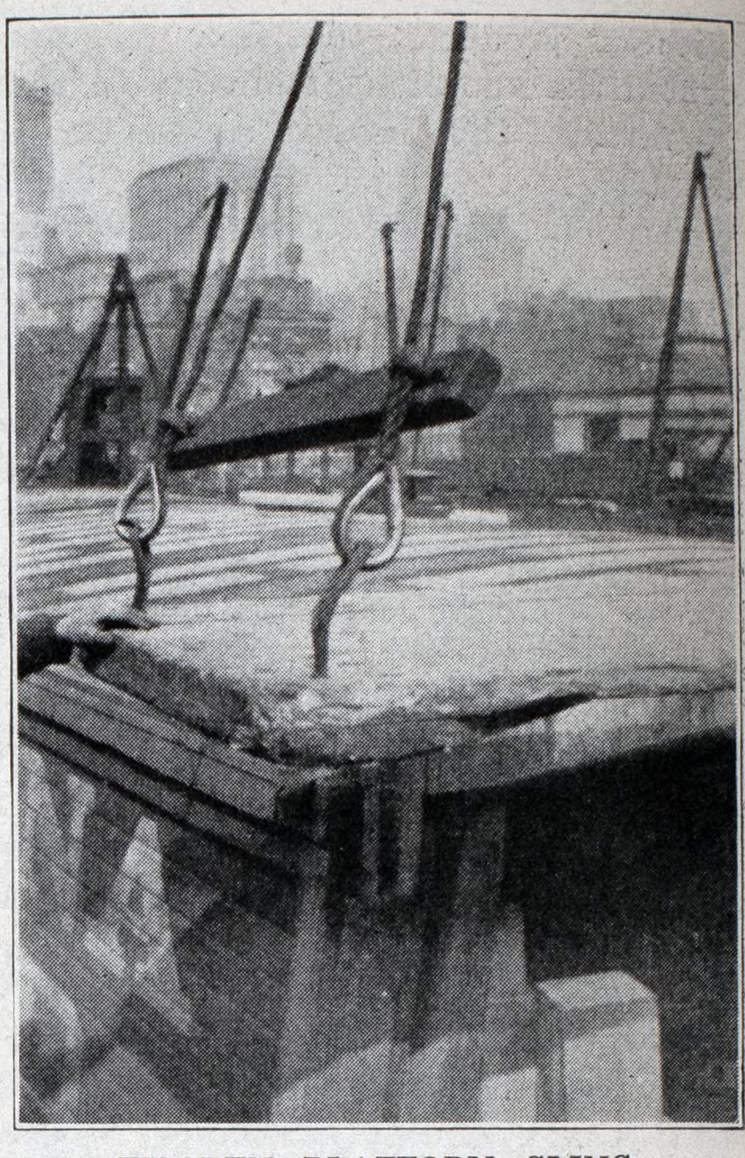
Simplifying the use of platform slings to one or two sizes compared with six or eight would save in storage space, capital tied up in equipment, and lost time in changing from one size to another. Stevedores are known to use seven platforms to a gang. The expense of changing from one size platform to another is obvious, and is well worth saving.

Another type of platform sling can be obtained by using the platform with the legs down. Ropes can be run under the platform lengthwise and looped over the slingload to hold it in place when being dragged in the hold. A small plate to protect the ropes and hold them in place can be riveted to the ends of the platform and runners riveted to the bottom of the legs. This increases the price $3 to $4 but the platform would still be only about half the cost of a wooden platform.

On docks where electric, gasoline or hand lift trucks are used, the all steel skids may be used either as skids or platform slings.

Standards cannot be arrived at arbitrarily nor without adequate investigation and experimentation.

This sort of platform sling should be experimented with—this is the only way in which to find out the extent to which it can be used. Accurate observation with the aid of a stop watch, and careful study of performance will determine the comparative advantages of the steel platform sling. The real test is cost per ton of cargo handled and the effect on ship dispatch. There is enough merit in the idea to warrant experimentation



WOODEN PLATFORM SLING

and an ounce of experience is worth a pound of argumentation.

The department of commerce will assist in this work by interchanging information, advising of progress elsewhere and by bringing together the various interested groups.

Judging the results of standardization and simplification accomplished in other industries, there is an excellent outlook for equally important economies in a standardization and simplification to be gained for stevedores and shipping companies.

Gulf-River Plate Line Sold to Operator

On March 27 the shipping board rejected all bids for the purchase of the Gulf Brazil River Plate line which were received on March 11 and authorized the sale of the line for the sum of $2,700,000, which price was developed through negotiations with the Mississippi Shipping Co., the present operator of the line. The Munson Steamship Co. had bid $2,695,672.00, Joseph Silverman, Jr., had bid $1,113,493.50 and Moore & McCormack had bid $858,980.70. A complete report of the offers received appears in MARINE REVIEW for April on page 104.

In selling the line to the present operator who has built up the service over a long period of years, the shipping board had in mind the spirit of the merchant marine act and its established policy of recognizing in the sale of lines to the operators whom the shipping board has developed to a point of efficiency at great cost to the government, the interest of the

whole country in foreign commerce.

The purchaser will operate the line for a period of guaranteed service of five years, between United States Gulf ports, in the range from Houston, Texas, to Pensacola, Fla., both inclusive, and Brazil and River Plate ports, agreeing to make thereon not less than a total of 36 outward voyages, of which not less than 12 of such voyages shall be by monthly sailings from New Orleans and, when cargo offerings warrant, from Texas ports, with the privilege of calling at other United States Gulf ports within the above described range, to Brazilian ports; not less than 12 voyages by monthly sailings from New Orleans and other Texas and Gulf ports within the described range, to River Plate ports; and not less than 12 voyages by monthly sailings from New Orleans and Mobile with privilege of calling at other Gulf ports within the described range, to River Plate ports.

The twelve ships purchased aggregate a total of 96,274 deadweight tons the ships being as follows: S. S. AFEL, BIBBCO, CASEY, CLAVARACK, CLEARWATER, LORRAINE CROSS, SALVATION LASS, SAUGERTIES, SCHOODIC, WEST CORUM, WEST NERIS and WEST SEGOVIA. These are all freighters.

Good Dock Floors Reduce Labor Cost

THE importance of good dock floors is generally admitted but very often ignored. It is surprising the numbers of bad dock floors which are found on marine terminals. When floors are good, ramps, aprons and gangways are often poor.

Poor floors are generally of wooden construction, which is satisfactory when new, but which wears unevenly and splinters. The maintenance expense of a poor floor is heavy. The cost of handling cargo over the dock is increased by the greater unevenness encountered by trucks. The constant pounding that equipment receives increases maintenance and repair expense. The greater resistance increases power costs.

A test conducted with a hand lift truck carrying a load of 2500 pounds, showed that 50 to 60 pounds were necessary to start the truck, and 30 to 40 pounds necessary to keep it moving. A match, placed in front of the front wheel, increased the starting pull to 120 pounds, while an ⅛-inch wire increased the pull to over 300 pounds.



AN EXAMPLE OF BAD APRON—TWO MEN DOING ONE MAN'S WORK

Bad dock floors increase labor costs. Men become fatigued in pushing trucks into and out of ruts and depressions in the surface of the floors. When the truck wheels get stuck, considerable forcing is necessary to get the truck under way. Many times the trucker must back off and take a run at a depression in order to clear it or be assisted by another trucker. Cargo is damaged by falling off the trucks because of the jarring produced by the rough floors.

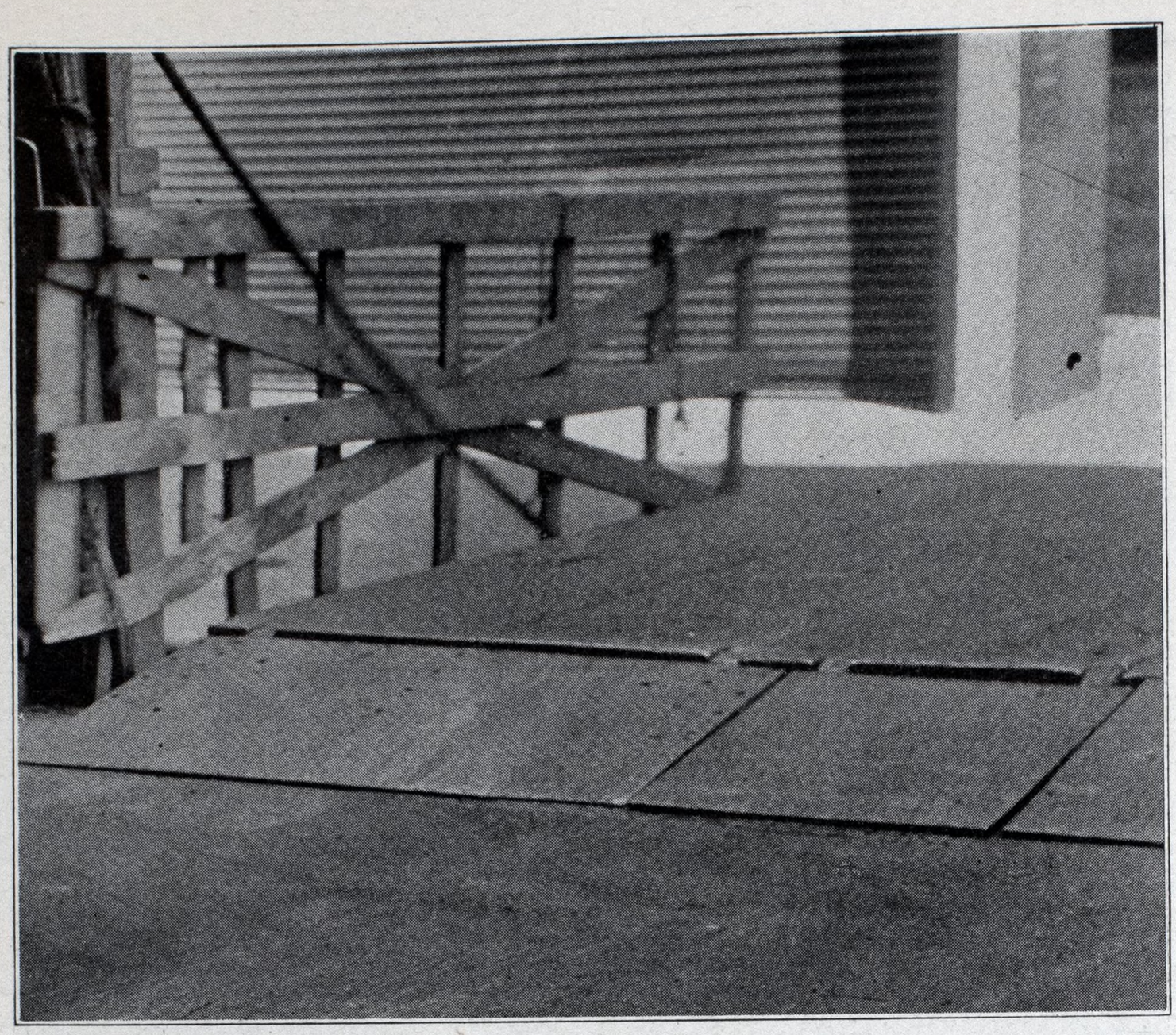


DOCK FLOOR EXPENSIVE TO MAINTAIN AND TO OPERATE OVER

These conditions can be remedied by covering the gangways with ¼-inch steel plates. This was done as long as 15 years ago by the Merchants and Miners Transportation Co., and was recently done by the Chesapeake line at Baltimore. The work can be done for about 27 cents per square foot for new steel sheets and at a fraction of this price for scrap steel sheets.

The Merchants and Miners Transportation Co. estimated that improving their dock floor in this manner speeded up dock work over 10 per cent.

The Hudson River Night line at New York improved floor conditions by relaying the planks so as to run lengthwise of the dock. This eliminated the corrugated effect experi-



WOOD BLOCK WITH GRAIN END UP AT SIDE PORT ENTRANCE TO A GREAT LAKES STEAMER—GOOD AT END OF SIX YEARS

enced when the planks lay crosswise.

Special wood block floors with the grain end up have proved satisfactory in industrial plants, railroad shops, freight stations. An experimental section of this type floor, laid at the side port entrance of a Great Lakes steamer, had a smooth surface after six years of hard wear. This floor is shown in one of the illustrations.

Expenditure for good floors simply means spending money, now being used for maintenance and repair of equipment, for paying damage claims, for extra power and for labor costs, for improving the dock floor so that these expenses can be eliminated. After the cost of the improvement is paid for, the money formerly paid out for these unnecessary expenses, becomes profit.

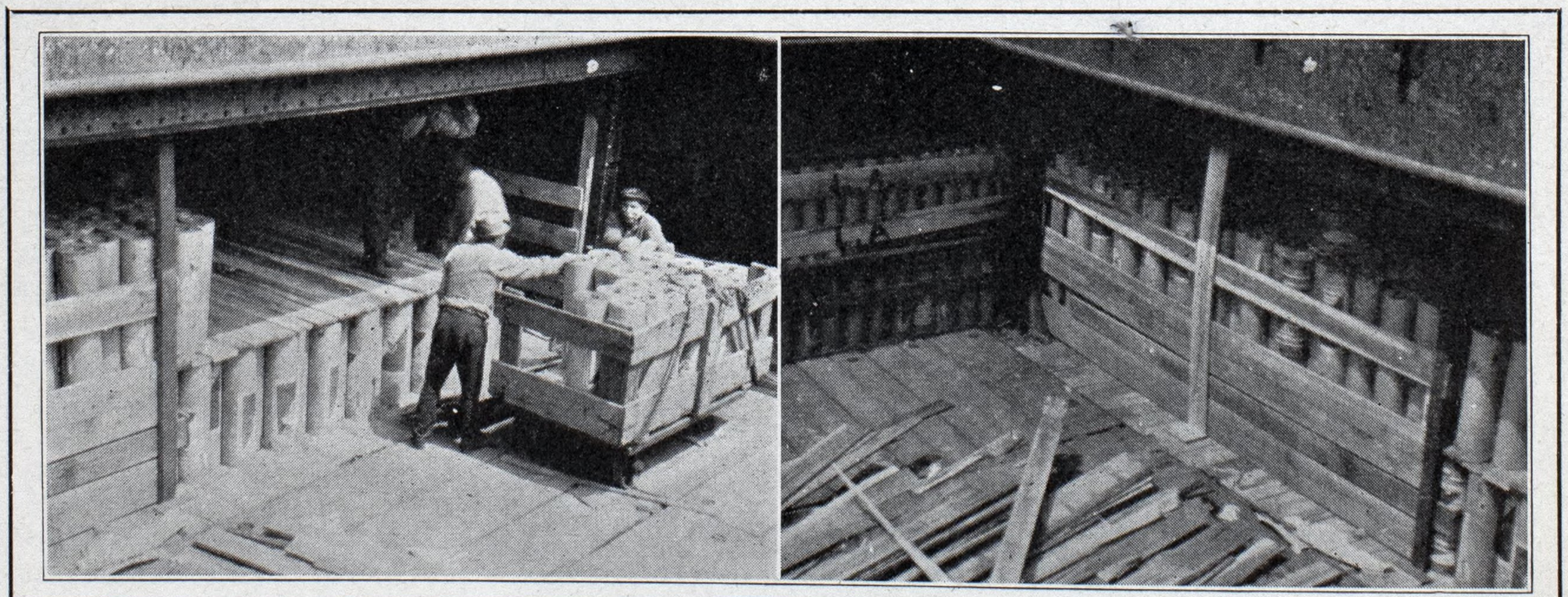
Reduce Operating Costs on U. S. Lines Ships

In order that the vessels of the United States Lines, Inc., recently acquired from the shipping board by Paul W. Chapman, may be operated profitably under private ownership, William L. Bunker, vice president in charge of operation, has begun an interesting program of promoting economy. Following a careful survey of the situation, Mr. Bunker found that a number of employes on the various liners could be dispensed with without impairing the efficiency of the service.

The personnel of the LEVIATHAN was accordingly reduced by 81 and proportionate reductions, wherever possible, will be made in the other vessels of the fleet. The reduction of personnel in the LEVIATHAN will effect a saving of approximately $5000 monthly in the payroll of the vessel, as well as the attendant cost of food and supplies, and in addition the space formerly occupied by the 81 members of the crew will be converted into 30 additional cabins in desirable passenger space from which a revenue will be added to the yearly earnings of the vessel.

Mr. Bunker, who is well qualified as an operating manager, stated that there is to be no cut in the wages of the personnel but that reduction in the number will be made wherever possible. The fleet of the United States Lines, Inc. includes the following vessels: LEVIATHAN, AMERICA, GEORGE WASHINGTON, REPUBLIC, PRESIDENT HARDING, PRESIDENT ROOSEVELT, AMERICAN BANKER, AMERICAN MERCHANT, AMERICAN FARMER, AMERICAN SHIPPER and AMERICAN TRADER.

The shipping board, meeting April 5 authorized the sale of the S. S. CONEHATTA to the American Scantic Line Inc., New York city, for the sum of $46,950. This vessel is to be included in the line which serves the trade between New York and Scandinavian and Baltic ports. The line agrees to increase the minimum number of guaranteed sailings from 28 to 32 per annum.

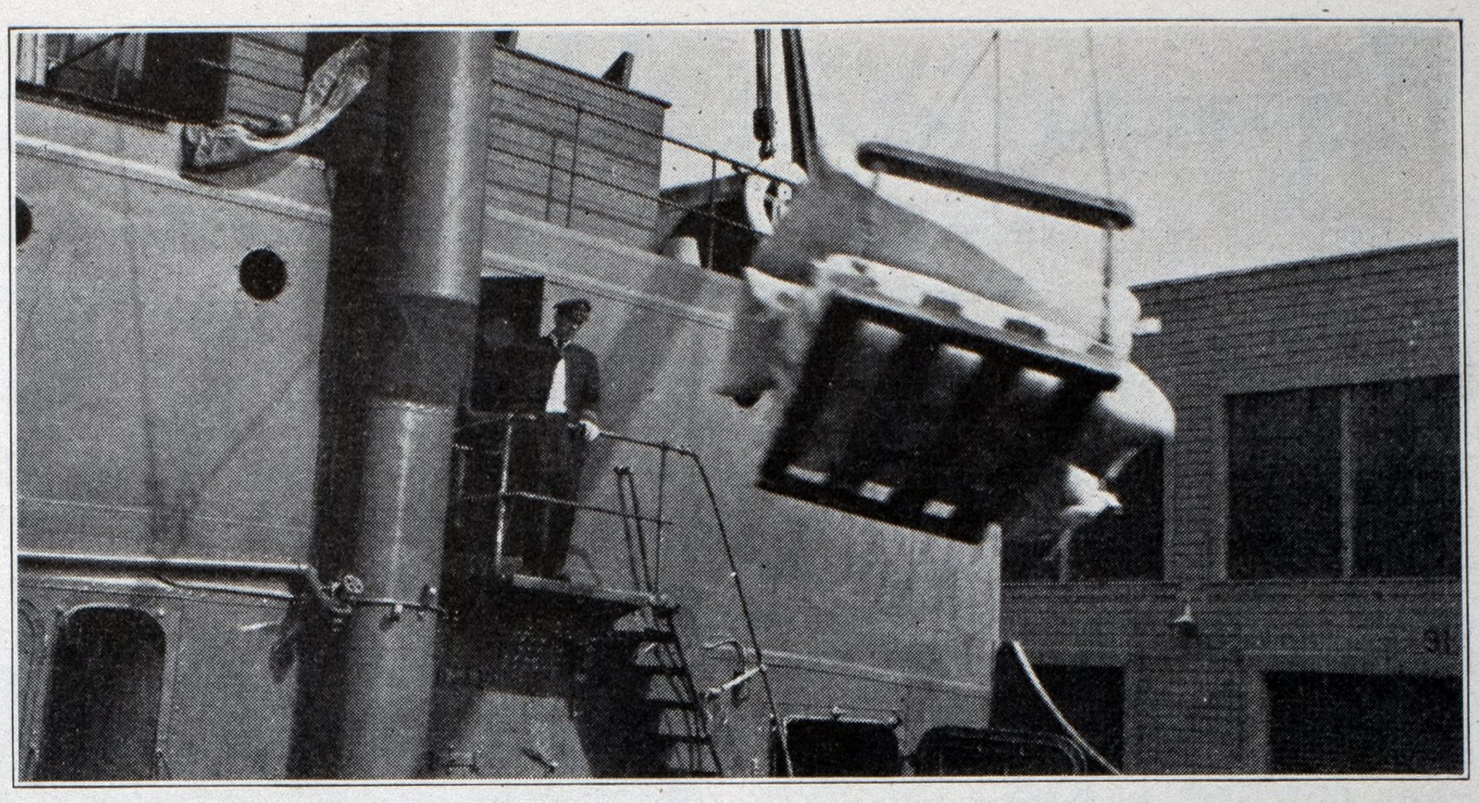


Damage claims on roofing paper have been avoided by keeping the rolls on end on the dock, in the sling and in the hold of ship, and by liberal use of dunnage

How to Avoid Damage in Carrying Soda

Caustic soda, sal soda and soda ash, coming in contact with galvanized sheets and pipe which have become wet from sweating or other causes, removes the galvanizing and results in heavy damage claims. Paint is also removed from cargo and ships' structure by these soda products; plain steel is not damaged, rust only is removed.

Damage is avoided by protecting surrounding cargo and ships' structure by matting, or by dunnage boards and tar paper. In slinging overside, care must be taken to prevent soda from sifting on to other cargo. A platform sling, as illustrated, is better for handling this character of cargo than a rope or a canvas sling. Rope or canvas slings cause the soda ash to sift as the slingload is jerked overside.



S. S. MUNINDIES DISCHARGING SODA ASH AT MARKET STREET DOCK, OAKLAND, CAL.

France and Diamond Lines to be Sold

ON APRIL 17 the shipping board authorized advertisements and approved specifications for sale of the America France line and the American Diamond lines for operation over their present routes under a guarantee that service will be maintained for a minimum period of five years. Bids for the lines will be opened at the office of the chairman at 12 noon, Eastern standard time, May 22, 1929.

Following are the lists of vessels from which selection is to be made by bidders:

Ships of America France Line

Name	Deadweight tons
Collamer	7840
Independence Hall	7825
Liberty	9669
McKeesport	9767
Pipestone County	7825
Sarcoxie	7825
Schodack	7825
Vincent	9778
Waukegan	9789
Total deadweight	78,143

Ships of American Diamond Lines

Name	Deadweight tons
Ala.	8727
Ambridge	9774
Anaconda	9786
Bellepline	9786
City of Alton	7840
Coahoma County	7840
Innoko	9769
Sacandaga	7825
Sac City	7825
Saco	7825
Tomalva	7825
West Arrow	8567
West Eldara	8560
Wytheville	9788
Total	121,737

The specifications of sale require purchase of not less than six of the nine vessels assigned to the America France line and not less than twelve of the fourteen vessels assigned to the American Diamond lines.

Service to be maintained on the America France line is not less than 36 outward voyages, to wit: three voyages a month, between New York and other North Atlantic ports of the United States north of and including Norfolk, Va., when cargo offerings warrant, and French Atlantic ports.

Service to be maintained on the American Diamond lines makes up a total of not less than 80 outward voyages a year after the three years duration of an existing pooling agreement. Of these two sailings a month must be between New York and Rotterdam with the privilege of calling at other United States North Atlantic ports; two sailings a month must be between New York and Antwerp with the same privilege; and two sailings a month must be between North Atlantic ports where cargo offerings warrant north of and including Norfolk, other than New York, to ports in Holland and Belgium, with privilege to buyer on any of such voyages of calling at New York. Should a sale of this line be made, moreover, it will be specified in the contract that the purchaser shall assume the obligations of the pooling arrangement now existing between the shipping board, the Holland-America line, the Red Star line and the Lloyd Royal Belge which recently was effected in this trade. Under the pooling agreement, the American Diamond lines is maintaining a schedule of 90 round voyages a year.

The board changed its clause with reference to making awards to managing operators in preference to other bidders from the following:

"Should the managing agent at present operating this line for the account of the shipping board make a substantial and bona fide bid, the board reserves the right to give preference to the operator in the sale" to the following:

"The United States shipping board reserves the right to give preference in the said sale pursuant to the direction and authority of section 7 of the merchant marine act, 1920, to persons qualifying under section 7, which persons include the managing operator of said line."

The vessels of these lines are of the steel cargo type ranging from 7825 deadweight tons to 9789 deadweight tons. The aggregate tonnage of both fleets is 199,880.

Eugene A. Riotte Dies

Eugene A. Riotte, until a few months ago, president of the Standard Motor Construction Co., Jersey City, N. J., died at Miami, Fla., on April 4.

He was one of the pioneers in the marine engine business in the United States and, with his brother, the late Carl C. Riotte, organized the Standard Motor Construction Co. in 1904. His engineering foresight and ability placed the Standard engine in the highest rank of marine internal combustion engines.

Mr. Riotte's personal and his company's contribution toward the allied cause during the World war was of high order and his patriotism and total lack of mercenary consideration was notably shown in voluntarily setting the price on a contract for several hundred engines for the submarine chasers at a reduced figure, although there was no competition.

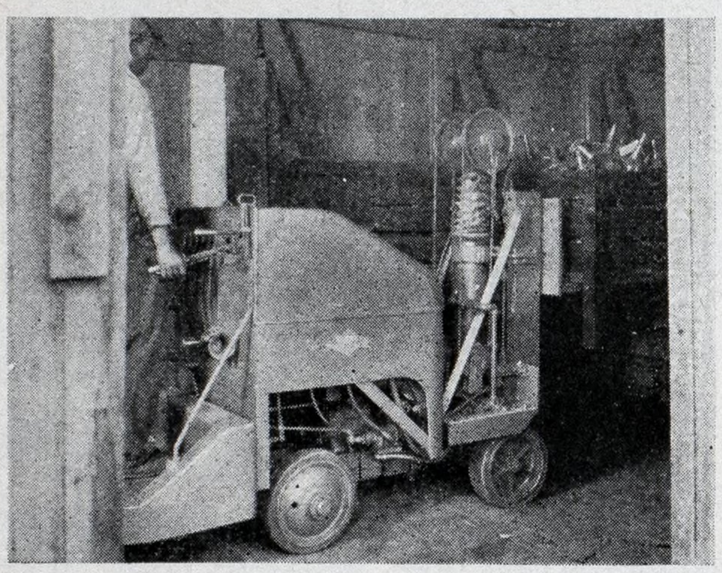
In October, 1928, Mr. Riotte was taken ill and was confined to his bed constantly from that time until his death. His loss will not only be greatly felt by the company of which he was the head for so many years, but also by his many friends.

Equipment Used Afloat, Ashore

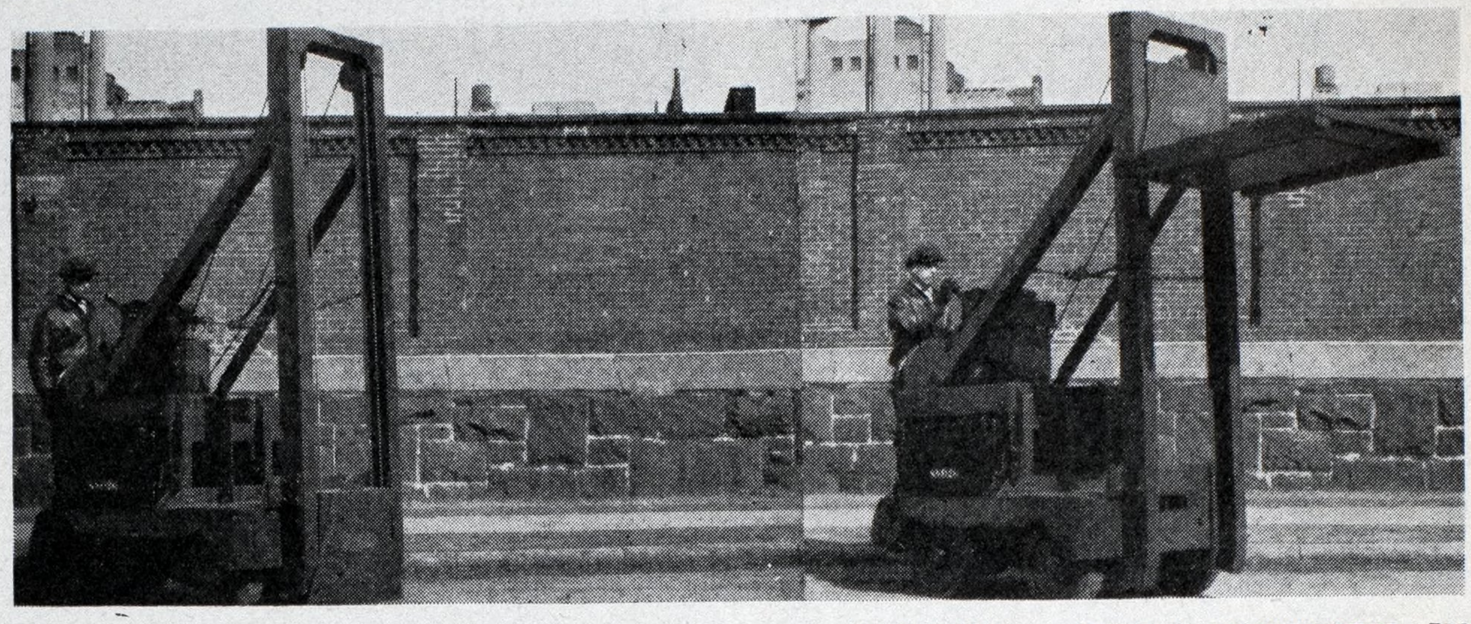
New Gasoline-Operated Lift Truck Offered in Two Models — Low-Lift Storage Battery Truck for Handling Skids

A NEW gasoline-operated lift truck has been brought out recently by the Clark Tructractor Co. of Battle Creek, Mich. This truck which is known as the "Tructier," is provided in two models, a low type with a maximum lifting height of 38 inches, and a high lift type with a maximum height of platform of 6 feet 4 inches. The lifting platform for lifting and tiering skids consists either of four fingers which extend out 26 inches, or a platform 26 by 30 inches. A special platform, 18 inches by 36 inches, is provided for handling other types of skids. These trucks handle skids of any clearance height from 2 inches up. Their rated capacity is 2000 pounds.

The trucks have an overall length of 117 inches, a width of 37 inches, wheel base of 39 inches and a turning radius of 108 inches. This makes it possible for the low type model to get in and out of box cars and other restricted spaces.



LOW LIFT TYPE GASOLINE TRUCK



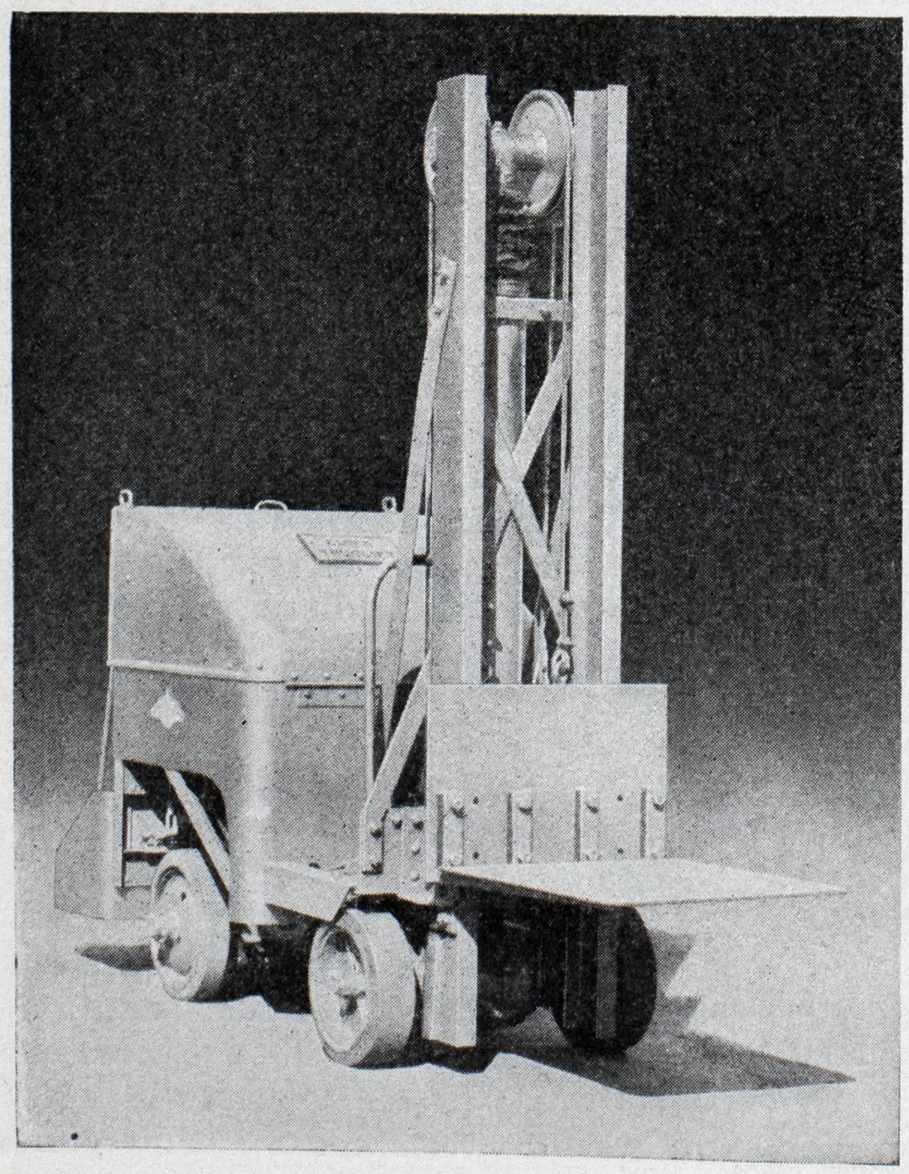
LEFT—TEC TRUCK WITH LIFTING PLATFORM LOWERED. RIGHT—PLATFORM IN ELEVATED POSITION AFTER PICKING UP A SMALL TYPE OF SKID

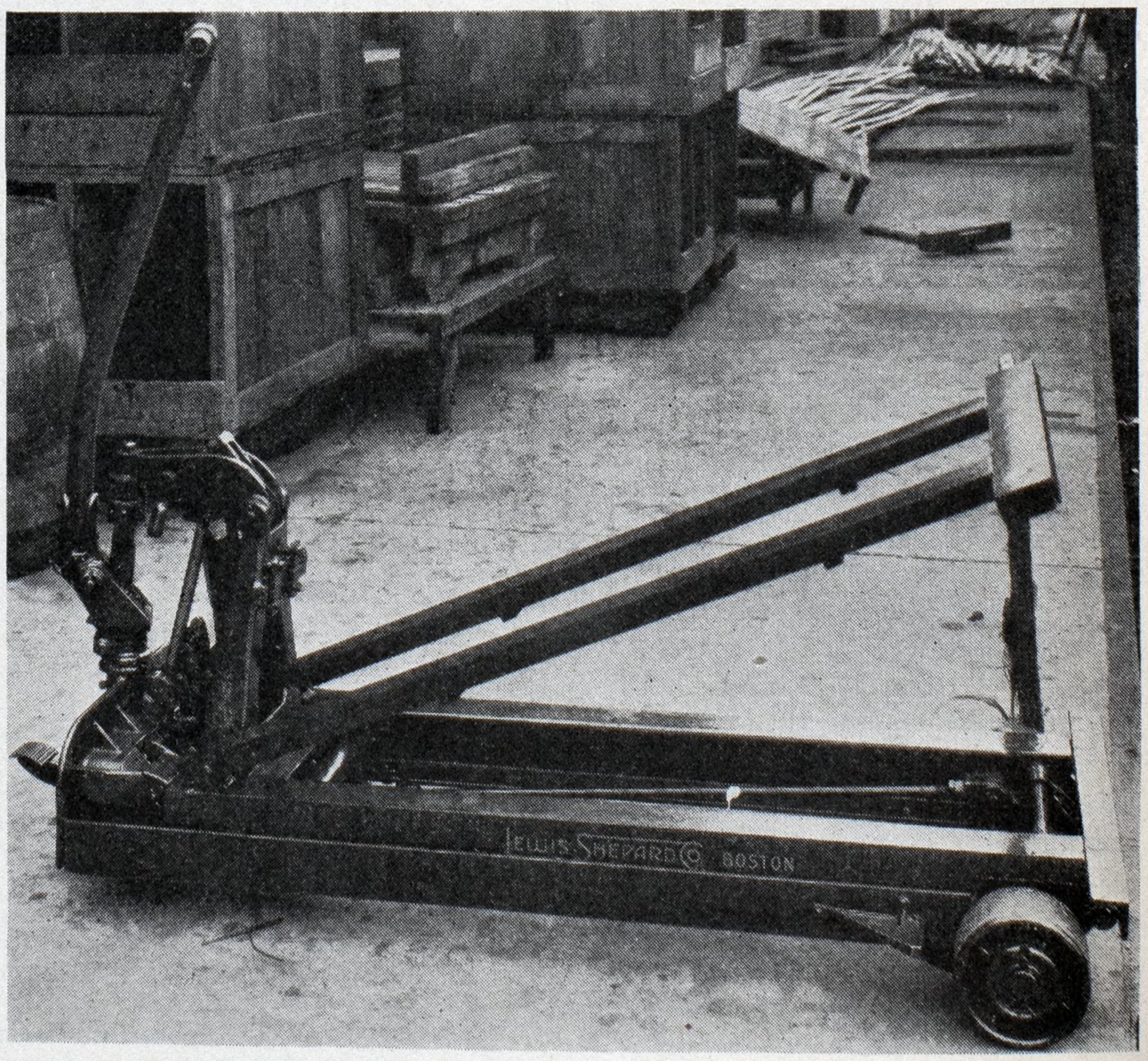
When the trucks are operating on a grade, the load is held securely in position because the platform tilts 5 degrees backward in the first 6 inches of upward travel.

Storage Battery Truck

A new truck for handling skids of a low clearance height has been recently developed by the Terminal Engineering Co. of New York city. This is an electric truck, equipped for four wheel drive and four wheel steering. It has a rated capacity of 2500 pounds. The dimensions are 84 by 48 inches. The wheel base is 36 inches. The truck can be turned around a fixed point located at the center of either side, making a circle with a radius of 49 inches, exclusive of the platform. Platforms are supplied in any size desired. Forks may be used in place of platforms.

This truck is capable of lifting skids two inches high and upwards and tier to a maximum height of 8 feet two inches. The truck may be used as a crane truck by attaching a hook to the underside of the lifting platform.





LEFT—HIGH LIFT TYPE GASOLINE OPERATED TRUCK. RIGHT—IMPROVED HAND LIFT TRUCK

Board Proposes to Sell Mediterranean Line

The Merchant Fleet Corp. was directed by the shipping board on April 2 to prepare advertisements for bids, instructions to bidders and specifications looking to the sale of the Gulf West Mediterranean line which operates a fleet of eight cargo steamers between Gulf ports of the United States and ports of Spain, Portugal and North Africa west of Bizerta. The line, with an aggregate of 63,213 deadweight tons, is operated by the Tampa Inter-Ocean Steamship Co., New Orleans.

Procedure followed heretofore in the sale of lines will govern the transaction now proposed, with the board requiring the purchaser to guarantee a minimum number of voyages over prescribed routes for a definite term of years.

The vessels are the steamships CARDONIA, CARLTON, JOMAR, LAFCOMO, OGONTZ, PRUSA, SAPINERO, and WEST CHATALA.

To Build Many Barges

Contracts for the construction of 40 barges at a total cost of $2,500,000 for operation by the Inland Waterways Corp., on the Mississippi, Missouri and Warrior rivers, has been awarded by the war department as follows: American Bridge Co., Pittsburgh, 24; Riter-Conley Mfg. Co., Pittsburgh, 11; Midland Barge Co., Midland, Pa., 5. The barges will have a capacity of 1000 tons each in 6-foot channels and 2000 tons in 9-foot channels.

New Floating Equipment

American Car & Foundry Co., Wilmington, Del., has closed contract with the Eastern Steamship lines for the construction of a floating tower lighter 100 feet long, 30 feet beam, equipped with a 400-horsepower Winton diesel engine, as well as two derrick lighters to be used in connection with the company's business in New York harbor.

Diesel Trawlers Placed

The Bath Iron Works, Bath, Me., has closed a contract with the Bay State Fishing Co., Boston, for the construction of two high-powered steel fishing trawlers. The vessels will be about 140 feet long and will be equipped with Winton diesel engines. The power equipment will consist of a 500-horsepower, six-cylinder main engine and three independent diesel engine generating plants, the larger of which will be of 120 horsepower. The engines will be supplied by the Walter H. Moreton Corp., Boston, New England distributor of Winton diesels. The trawlers will be the first fishing boats in Atlantic waters to be equipped with high-powered Winton diesel engines.

A contract has been placed with the Sun Shipbuilding & Dry Dock Co. by the Sun Oil Co., an affiliated organization, for the construction of a 13,400-ton motor-driven tanker.

United Dry Docks Inc. recently closed a contract for two tugs with the Standard Oil Co. of New York. The tugs will be built at the Staten Island yard and will cost approximately $250,000.

Three New Matson Liners Contracts Placed

An agreement has been reached between the Matson Navigation Co. and Bethlehem Shipbuilding Corp. for the construction of three new passenger liners for the Australian and Far East services of the Oceanic & Oriental Navigation Corp. The three vessels will be built at the Fore River plant and will cost $7,000,000 each. This represents a reduction of approximately $1,500,000 from the original Bethlehem bid, made possible by a revision of plans which reduced the length of the vessels from 625 feet as originally planned to 585 feet. The vessels will have geared turbine drive and a speed in excess of 18 knots, with a guaranteed fuel consumption of not more than .65 pound per horsepower for all purposes.

Geared Turbine Drive

According to a recent announcement contract for a complete drive for installation aboard the dredge New Jersey owned by the American Dredging Co. has been awarded to the Westinghouse Electric and Mfg. Co.

The apparatus will be built at the South Philadelphia works of the Westinghouse company and includes a 1400 horsepower steam turbine and gear together with a 1650 square-foot condenser and its attendant auxiliaries and will replace a 720 horsepower triple expansion reciprocating engine. An oil type pilot house control will also be furnished.

Launch Ferry Yorkville Ready for Service

When the ferryboat YORKVILLE was launched at the Tebo plant of the Todd Shipyards Corp. on March 28 her machinery had been installed, steam up, and the vessel ready for service the minute she left the ways. This innovation was approved by Commissioner Albert Goldman and permitted the officials of the department of plant and structures to board the ferry for a trial trip around the harbor.

The YORKVILLE is a sister ship to five other Todd-built ferryboats in the service of the City of New York. She is constructed of steel to the highest classifications of the American Bureau of Shipping and to the latest requirements of the United States steamboat inspection service.

She is 151 feet in length, 53 feet in breadth, and 14 feet 3 inches in depth and is of the double end type with three driveways for vehicles and two cabins for passengers on the main deck. The hull is divided into seven watertight compartments. The propelling machinery consists of two vertical compound, surface condensing steam engines built by the Todd Dry Dock Engineering & Repair Corp., coupled together on one shaft with a screw propeller at each end. She is equipped with the Todd fuel oil burning system and a complete set of steam auxiliaries. The YORKVILLE has separate steam and hand-steering gear controls in each pilot house and has a speed of 12 knots.

Two Freighters Sold

The shipping board on April 2 authorized the sale of the S. S. WEST CHEROW and S. S. WESTLAND to the Shepard & Morse Lumber Co., Boston, for the sums of $117,000 and $132,000, respectively. The vessels will be made ready for sea and put in the intercoastal service together with the S. S. WESTBROOK which the owner previously purchased from the shipping board.

The WEST CHEROW is a steel cargo vessel of 8582 deadweight tons, equipped with General Electric turbines and scotch coal burning boilers. She has been laid up at Norfolk since July, 1924.

The S. S. WESTLAND is a steel cargo vessel of 8800 deadweight tons equipped with General Electric turbines and scotch oil burning boilers. She has been laid up at Mobile since June, 1927.

Late Decisions in Maritime Law

Legal Tips for Shipowners and Officers

Specially Compiled for Marine Review
By Harry Bowne Skillman
Attorney at Law

CONGRESS, having legislated on the subject of actions for death of seamen as result of personal injury (Jones act), state statutes are inapplicable; action must be brought within two years from day the cause of action accrues.—NORTHWESTERN, 26 F. (2d) 290.

* * *

STIPULATION in a charter that the charterer shall not have authority to incur liens cannot affect the right of seamen to their wages, as such wages are accorded a superior position in admiralty; seamen have a lien against a vessel for the penalty for delayed payment of wages. —CHESTER, 25 F. (2d) 908.

* * *

IT WAS decided in the case of Armour Grain Co. v. Compagnie Generale Transatlantique, 26 F. (2d) 739, that a ship is bound to sail within a reasonable time after loading unless there is an agreement to the contrary. And, further, that a ship whose turbine engines have been removed and are undergoing repairs is not to be considered as seaworthy.

* * *

WHERE a stream has never been impressed with the character of navigability by past use in commerce, commerce actually in esse or at least in all reasonable possibility in posse is essential to navigability; power of congress over such streams springs as an incident to the general power to regulate commerce, and springs in aid of commerce past, present, or actively potential.—Gulf & Interstate Ry. Co. of Texas v. Davis, 26 F. (2d) 930.

* * *

CLAUSES in bills of lading permitting deviation from the usual route of navigation are construed strictly and with reference to the particular voyage contracted for. In the case of Smith v. United States shipping board, 26 F. (2d) 337, the court had under consideration a clause permitting a vessel carrying cargo from San Francisco destined for Hamburg, Rotterdam and Cardiff, "to touch at any port or ports, in any rotation or order in, or out of, the customary route," and it appeared that the vessel passed Rotterdam for Hamburg, intending to discharge the Rotterdam cargo on her return. The court said that such clauses allow a ship to depart to some extent from the customary route between the termini of the voyage, but that to allow her to pass the very terminus ad quem, and proceed to a port 250 miles beyond, would contradict the governing object of the contract, namely, the prosecution of the named voyage. Clearly, said the court, there must be some limit, or the voyage has no meaning, and the risk becomes indefinite. Persons dealing with the bill of lading, or insuring the cargo, do not expect the vessel to pass beyond the port of destination, and the liberty of doing so should not be read into the contract, unless granted in the clearest language.

* * *

IN THE case of MILWAUKEE BRIDGE, 26 F. (2d) 327, it was shown that unless there was negligence on the part of the ship in stowage, custody, care and proper delivery of its cargo, everything that happened while the cargo was within its control came within the exceptions in the bill of lading. In such circumstances, said the court, the burden of proving negligence was on the shipper. It was held, further, that failure of the master to inspect the hold of the ship after discovering the leaking of drums of sulphuric acid, which damaged a cargo of flour even if negligent, was a fault in the management of the ship, for which the ship was not liable.

* * *

IT IS a primary rule of navigation that all moving vessels shall maintain a careful and efficient lookout. The lookout is "both eyes and ears of the ship"; he must be properly stationed on the forward part of the vessel and must be held to a high degree of vigilance in that position. Neither the captain nor the helmsman in the pilot house can be considered to be "lookouts" within the meaning of the maritime law.—Dahlmer v. Bay State Dredging & Contracting Co., 26 F. (2d) 603.

* * *

STEAMBOAT, ROSE STANDISH, was held, in case reported in 26 F. (2d) 480, not at fault for collision, it appearing that the steamboat was about 130 feet from a wharf, with speed of approximately two knots per hour, when the captain gave signal to slow, which was followed by signal to stop, and then by signal to reverse, and the engine was reversed, but, owing to failure of the exhaust valve to operate normally, the engine failed to respond and the boat was not brought to a stop until after it had collided with a ferry boat. It was further held that in a proceeding by the owner of a boat for limitation of liability for collision, the burden of proof on the merits is on the claimant, and not on the petitioner.

* * *

MOORING scows two abreast near the entrance to the Cape Cod canal, so that the outer scow projected 59 feet into the channel, leaving 241 feet of navigable water, was not improper as respects liability for collision therewith by a passing vessel having 17-foot beam. The vessel colliding with the scow was presumed to have been in fault, said the court in Dahlmer v. Bay State Dredging and Contracting Co., 26 F. (2d) 603, and duty was on her to exonerate herself from blame by showing that it was not within her power to have prevented collision by taking reasonable and practicable precautions.

* * *

A VESSEL does not make entry, within the meaning of the customs laws, by arriving at a port, said the court in United States v. Sullivan, 26 F. (2d) 606. Entry in the technical sense of the navigation laws means compliance with the regulations of the port for the purpose of taking on or discharging passengers or cargo and not merely putting in for orders or supplies or repairs.

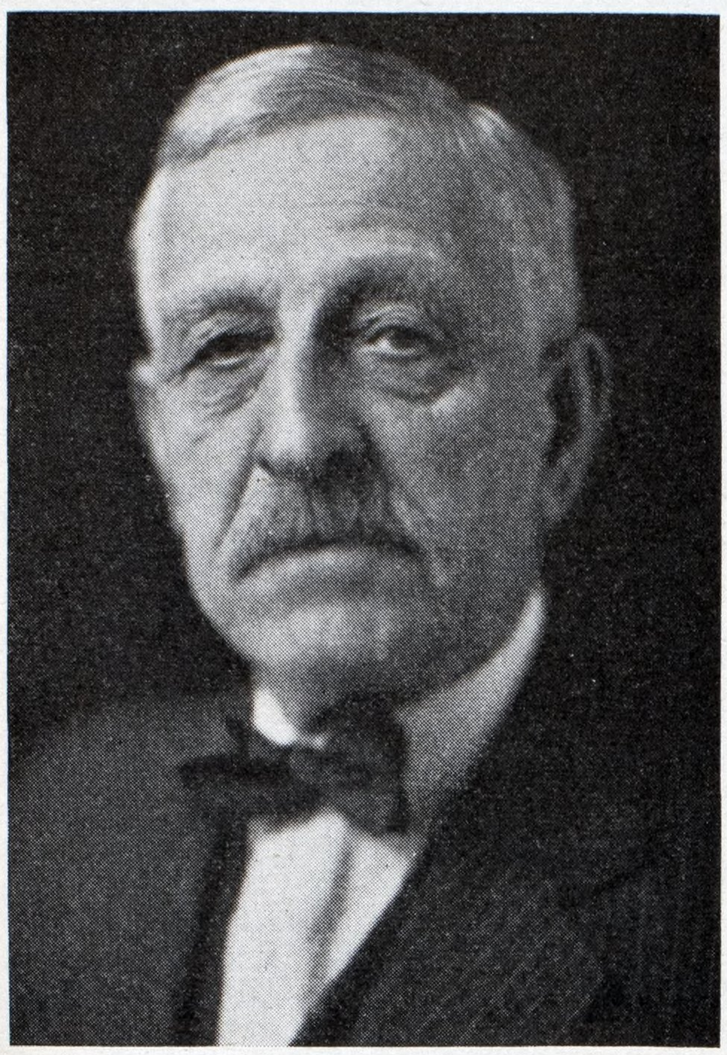
* * *

IT IS well settled that the tug is the dominant mind and will of the tow; and, declared the court in the case of ROBERT H. COOK, 26 F. (2d) 710, the master of the tug is not only under duty to various members of the tow to give instructions relative to steering of the boats while going through a narrow channel, but to see that its instructions are obeyed.

* * *

A SHIP is bound to sail within a reasonable time after loading unless there is an agreement to the contrary. . . . Where the contract provides 'February loading,' as this contract does, it is incumbent on the respondent to show by preponderance of evidence that it notified the libelant's representative that the ship's machinery had been removed and was in process of repair and that her sailing date would be delayed pending such repairs. . . . A ship whose turbine engines have been removed and are undergoing repairs is not to be considered as seaworthy. . . . The delay in sailing until March 22, when the cargo had been loaded Feb. 25, is, in the absence of agreement to the contrary, an unreasonable delay in sailing. For such delay the respondent is liable in damages for the difference between the market price of the grain at Hamburg, (port of destination), on the date when it should have arrived and the market price at Hamburg on the date of the actual arrival there of the grain."—Armour Grain Co. v. Compagnie Generale Transatlantique, 26 F. (2d) 739.

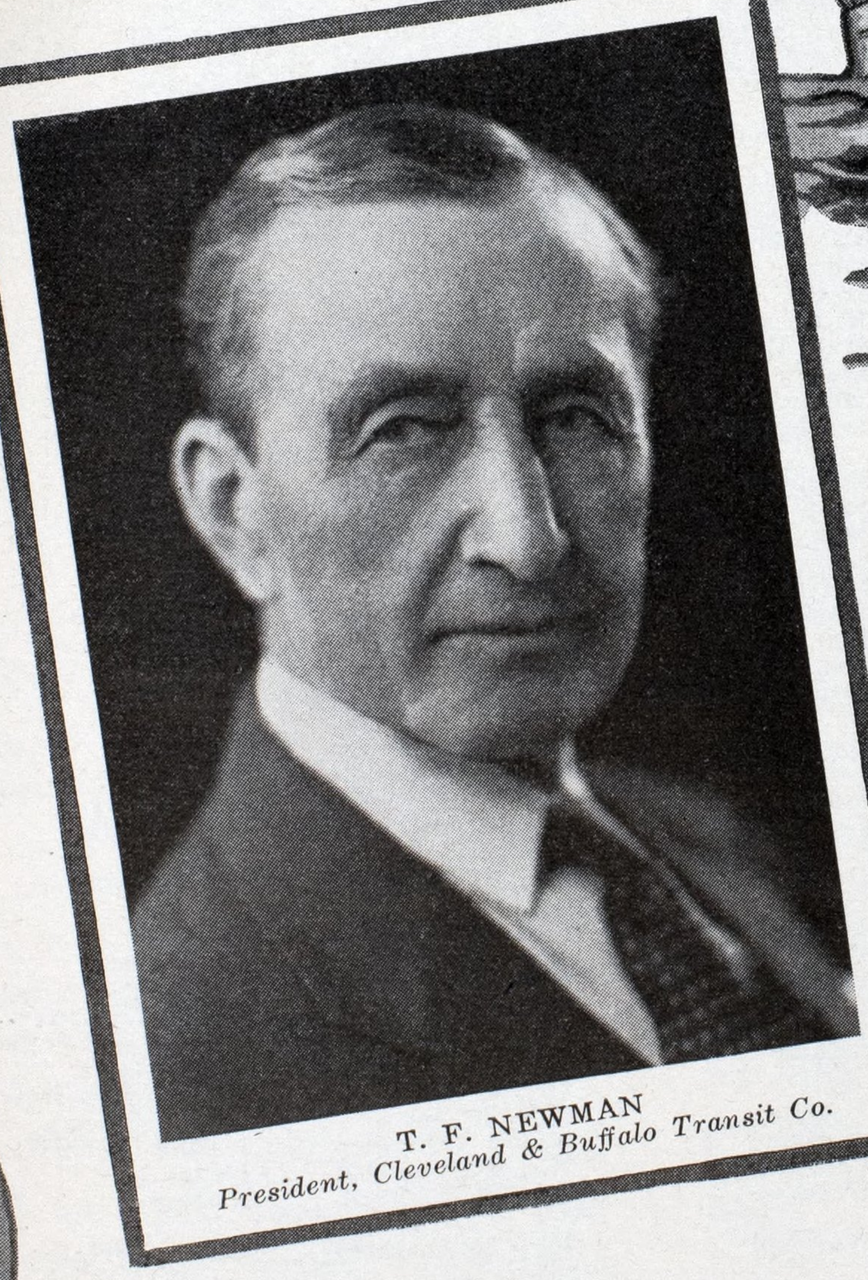
MEN of MARINE AFFAIRS



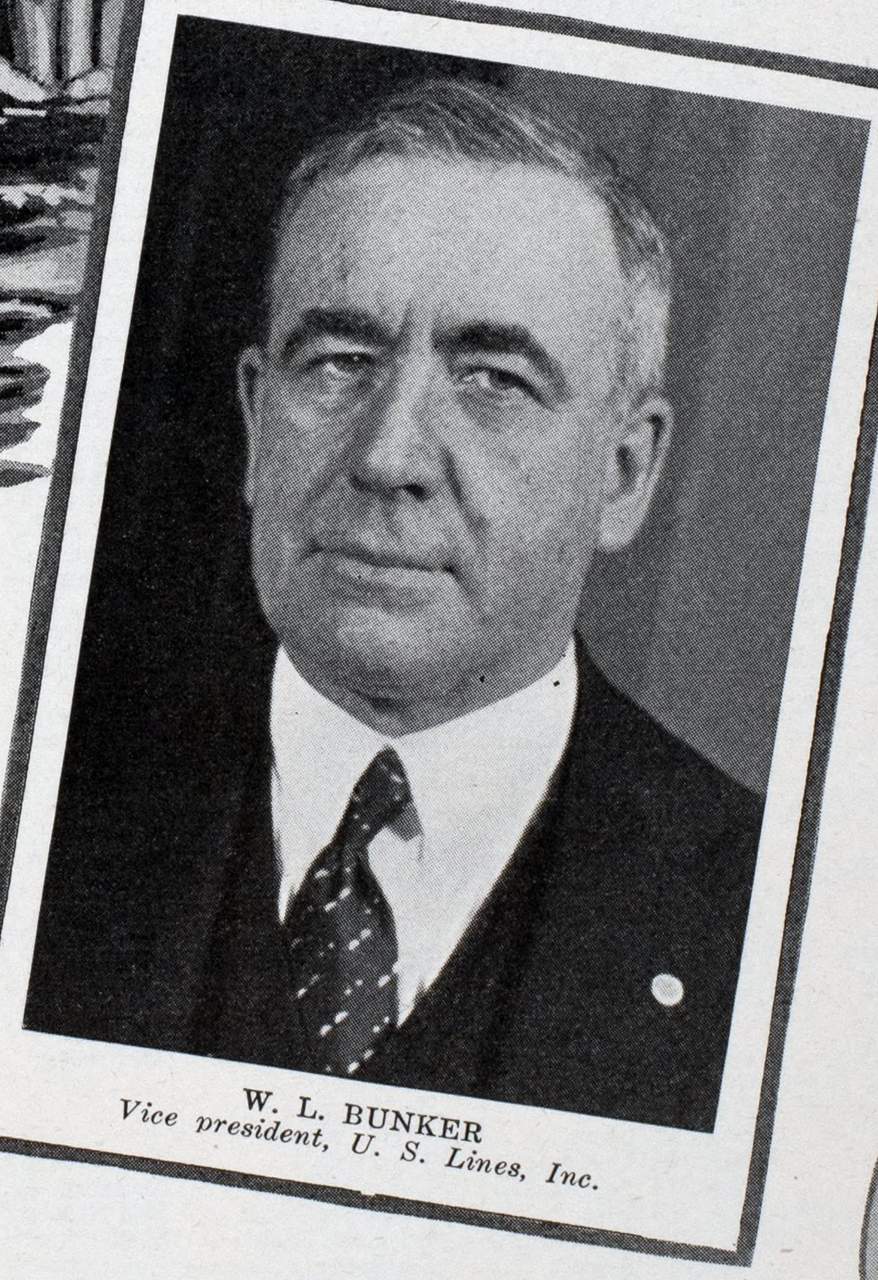
H. STEINBRENNER
Manager, Kinsman Transit Co.



J. H. PHILBIN
Vice president, U. S. Lines, Inc.



T. F. NEWMAN
President, Cleveland & Buffalo Transit Co.



W. L. BUNKER
Vice president, U. S. Lines, Inc.

Photos by Blank-Stoller, Inc.

Late Flashes On Marine Disasters

Brief Summaries of Recent Maritime Casualties— A Record of Collisions, Wrecks, Fires and Losses

Name	Date	Nature	Place	Damage Resulting
Ambassador	Nov. 4	Struck whf.	St. Thomas	Starboard bow; frames
Andres	Nov. 1	Aground	Landscrona	Rudder
Anna	Nov. 1	Sank	55:27N., 12:42E	
Alexandra	Nov. 20	Disabled	No. of Fayal	Rudder
Australia	Nov. 19	Disabled	Adelaide	Propeller
Arran Firth	Nov. 20	Ashore	Texada Island	Floated
Arsa	Nov. 9	Collision	Dublin River	Stem
Axpe Mendi	Nov. 12	Ashore	n.w. Hartwell Rf.	Badly
Alice	Nov. 15	Collision	Nr. Dungeness	Sank
Abeyron	Dec. 8	Collision	New Orleans	Not stated
Arnabal Mendi	Nov. 26	Ashore	Les Briguettes	Propeller
Braddovey	Dec. 4	Disabled	Bermuda	Rudder
Bampton Castle	Nov. 5	Ashore	Inner Gabbard	Rudder
Ben Iver	Nov. 16	Disabled	Aberdeen	Rudder
Barbara	Nov. 25	Sank	At sea	
Banquise	Nov. 28	Sank	Arcachon	
British Rover	Nov. 29	Aground	River Scheldt	Floated—engines
Covalt	Nov. 16	Aground	Soo River	Floated
Cawdor	Nov. 1	Sank		
Catherine Scott	Nov. 22	Disabled	Mobile	Rudder
Cariboo	Nov. 23	Sank	East London	
Chief Maquilla	Nov. 29	Sank	At sea	
Collier No. 1	Dec. 2	Ashore	Starve Island	Floated
Caerphilly Castle	Nov. 9	Disabled		Not stated
Chatton	Nov. 9	Collision	Venice	Above water line
Clan Macindoe	Nov. 14	Struck bank	Suez Canal	Rudder
Churton	Nov. 16	Collision	Woodside	Not stated
Clytha	Nov. 14	Collision	Ghent	Plates
Courage	Dec. 5	Fire	Not stated	Not stated
City of Omaha	Dec. 10	Disabled	Hamburg	Propeller
Circe	Nov. 26	Collision	Gravesend	Sank-raised
Cap D'Ailly	Nov. 28	Disabled	Brest	Steering gear
Contra Costa	Nov. 25	Collided whf.	San Francisco	Damaged
Doris M. Hawes	Nov. 20	Disabled	Off Cape Cod	Not stated
Dieter Hugo Stinnes 12	Oct. 30	Collision	Greenwich	Stem
Daniel Stroud	Nov. 22	Ashore	Kirkwall	Floated
Dora	Nov. 22	Ashore	Fredrikshavn	Not stated
D'Entrecasteaux	Nov. 29	Collision	Dunkirk	Not stated
Enton	Nov. 19	Disabled	Sandy Hook	Engine
Elmpark	Oct. 30	Collision	Greenwich	No. 3 hold
Edith	Nov. 10	Ashore	San Juan	Stern; bows
Ellen	Nov. 26	Ashore	No. of Bayonne	Not stated
Euzkadi	Nov. 30	Typhoon	Manila	Total loss
Francesco Crispi	Nov. 5	Fire	Genoa	Considerable
Floraclelia	Nov. 7	Sank	Buenos Ayres	
Fivel	Nov. 20	Stranded	Nr. Hasle	Floated
Fleurbaix	Nov. 22	Disabled	Lowestoft	Rudder
Gypsie	Nov. 23	Collision	Coos Bay	Floated
G. J. Grammer	Dec. 3	Ashore	Crab Island	Floated—wheel; plates
Gerberviller	Nov. 25	Gale	Off Pollock Rip	Disabled
Granero	Nov. 7	Collision	Cardiff	Port side
Gransha	Nov. 12	Collision	Garston Channel	Plate; rails
George M. Livanos	Nov. 21	Fire	Tocopilla	Damaged
Gulfland	Dec 8	Explosion	Port Arthur	Floated
Grigorios C.	Nov. 29	Collision	Piraeus	Considerable
H. W. Smith	Nov. 26	Struck dock	Fort William	Bow
Herrenwyk	Nov. 22	Sank	Lat. 55N, lon. 24W	
Hazel Branch	Nov. 6	Disabled	21:37N;61:42W	Not stated
Heinrich Podeus	Nov. 13	Ashore	Purfleet	Not stated
Hsin Chi	Nov. 20	Fire	Foochow	Total loss
Harry A. McLennan	Dec. 1	Ashore	Straits of Canso	Floated—leaking
Harris	Nov. 28	Stranded	Nr. Ostend	Not stated
Hercules	Nov. 29	Disabled	Manchester	Propeller
Ioannis	Nov. 7	Ashore	w. Cires Point	Starboard side
Ingunn	Nov. 4	Not stated	At sea	Total loss
Invergordon	Nov. 9	Collision	Liverpool	Not stated
Ifield	Nov. 27	Collision	Gravesend	Sank
Jacob W. Hook	Nov. 14	Disabled	lt. 33:57, lon. 74:43	Not stated
Jade	Oct. 31	Disabled	Off Frederikshavn	Cylinder cover
Jevington Court	Nov. 30	Collision	Galveston	Plates; frames
Karmoy	Nov. 14	Disabled	Norfolk	Prop; rud.
Kuretake Maru	Nov. 13	Disabled	Celebes Sea	Prop. shaft
Kentish Coast	Nov. 16	Ashore	Plymouth Sound	Bottom
Kiang Ching	Nov. 16	Collision	Shanghai	Superstructure
Karl Friedrich Larsen	Nov. 20	Collision	Kaiser Wilhelm Canal	Damaged
Kate Grammerstorf	Nov. 26	Sank	North Sea	
Kingcup	Nov. 26	Sank	Erith Reach	
Karnak	Nov. 29	Collision	Ymuiden	Not stated
Luminetta	Nov. 13	Not stated	Cape Henry	Steering gr.
Levenbridge	Nov. 10	Fire	Newport News	Not stated
Lucky Strike	Nov. 12	Hvy. weather	Off Cape Sable	Sank
Lozovsky	Nov. 5	Ashore	Kurushima Straits	Floated
Lillian E. Kerr	Nov. 27	Aground	Fishers Island	Floated
Lucy Evelyn	Dec. 4	Aground	Nr. Musquash	Leaking
Loyal Briton	Nov. 9	Collision	Venice	Above waterline
Linaria	Nov. 13	Disabled	48:40N;6:40W	Lost prop.
Lucienne Jeanne	Nov. 23	Disabled	Smalls E.N.E.	Not stated
London Maru	Nov. 26	Collided whf.	Shimonoseki	Stem
Menapier	Oct. 31	Collision	Monte Video	Stern
Montgomery City	Oct. 31	Collision	Iloilo	Starboard quarter
Marengo	Dec. 3	Fire	New York	Nos. 2 and 3 holds
Marionga II	Nov. 8	Disabled	Off Vardo	Rudder; steering gear
Maria Pinango	Nov. 14	Stranded	36N:23W	Not stated
Marie	Nov. 14	Aground	Quimper	Damaged
Matilder	Nov. 21	Sank	Riachuelo	
Malaren	Dec. 10	Stranded	London	Not stated
Massasoit	Dec. 11	Fire	East Boston	Not stated
N. B. Ream	Nov. 15	Storm	Lake Michigan	Damaged
Naomi Bruce	Nov. 17	Collision	Boston	Sank
Nashawena	Nov. 17	Ashore	Ten Pound Island	Not stated
Narcissus	Nov. 15	Aground	Pensacola	Floated
Nicoline Maersk	Nov. 22	Aground	Moreton Bay	Not stated
Neva	Nov. 23	Disabled	Westport	Lost rudder
Neptus	Dec. 3	Disabled	Off St. Pierre	Not stated
New Lambton	Nov. 15	Collision	Newcastle-on-Tyne	Not stated
Naval	Nov. 30	Stranded	No. of Hook of Holland	Not stated
Nicator	Nov. 28	Ashore	Nantes	Bottom
Ortega	Nov. 12	Stranded	Key West	Leaking
Ostanvik	Nov. 1	Stranded	Vasa	Floated
Oriole	Nov. 24	Disabled	Charleston	Steering gr.
Orchis	Nov. 15	Aground	Parett River	Bottom
Olga Topic	Nov. 28	Disabled	St. Nazaire	Rudder
Pallas	Oct. 29	Stranded	Off Kotka	Damaged
Patria	Oct. 29	Aground	Oland	Forepeak
Plato	Oct. 29	Aground	Stockholm	Not stated
Panaghis M. Hadoulis	Nov. 5	Ashore	White Island	Not stated
Prentiss	Nov. 23	Collision	Coos Bay	Aground
Petalli	Nov. 7	Collision	Cardiff	Not stated
Perseus	Nov. 14	Aground	Nr. Trikkori	Floated-tanks
Providence	Dec. 5	Collision	New York	Wheel
Prusa	Dec. 8	Fire	lat. 31:04N, lon. 37:05W	Not stated
Patris II	Nov. 26	Collision	Stamboul	Stern; plates
Queenworth	Nov. 8	Collision	Off Flamboro	Stem; hawse pipe
Quinaulty	Dec. 7	Fire	Nr. San Pedro	Not stated
Ruth Mildred	Nov. 14	Ashore	New York	Not stated
Romolo	Nov. 1	Disabled	Port Said	Steering gr.
Rowanburn	Nov. 6	Fire	Palamos	Considerable
Redgate	Nov. 15	Disabled	Zanzibar	Machinery
Rheinland	Nov. 20	Collision	Kaiser Wilhelm Canal	Damaged
Robur II	Nov. 20	Stranded	Nr. Skelleftea	Not stated
Roedelheim	Nov. 26	Hvy. weather	Ymuiden	Steering gr.
Rijnland	Nov. 29	Collision	Ymuiden	Badly
Sado	Oct. 31	Collision	Bordeaux	Not stated
Seattle	Nov. 20	Collision	Vancouver	Not stated
Scuarseco	Nov. 21	Collision	Cape Henry	Damaged
Saka Maru	Nov. 22	Ashore	Masdate Island	Not stated
Svanen	Nov. 6	Collision	Copenhagen	Badly
Salerno	Nov. 6	Collision	Copenhagen	Damaged
San Mateo	Nov. 5	Collision	Kaiser Wilhelm Canal	Badly
Sandpiper	Nov. 9	Collision	Dublin River	Damaged
Solon	Nov.	Not stated	East of Myrdal	Total loss
Saga	Nov. 16	Ashore	Off Dragor	Floated
Saverne	Nov. 15	Aground	Rosario	Not stated
Streefkerk	Nov. 16	Fire	Malta	No. 3 hold
Seneff	Dec. 3	Disabled	Off St. Pierre	Not stated
San Leon	Dec. 8	Collision	New Orleans	Considerable
Stentor	Nov. 23	Disabled	Gravesend	Engines
Sarah Colebrook	Nov. 30	Struck sub. wrckg.	Shoreham	Starboard bow
Sigrun	Nov. 29	Collision	Dunkirk	Damaged
Taiyo Maru	Oct. 29	Ashore	Tokio	Not stated
Toluma	Nov. 21	Collision	Cape Henry	Bow
Tango Maru	Nov. 3	Stranded	Off Thursday Island	Bottom; forepeak
Tomp	Nov. 5	Collision	Kaiser Wilhelm Canal	Badly
Trier	Nov. 9	Collision	Hamburg	Not stated
T. W. Stuart	Nov. 22	Ashore	Port Ellen	Damaged
Tartar	Nov. 26	Stranded	Ameland	Abandoned
Tabora	Nov. 28	Disabled	n.w. of Finisterre	Lost prop.
Torlak Skogland	Nov. 30	Struck bridge	Newcastle-on-Tyne	No. 1 hold
Umbria	Oct. 31	Ashore	San Stefano	Not stated
Utilla	Dec. 8	Ashore	Off Vineyard Haven	Floated
Virginia	Nov. 20	Ashore	Off Cape Cod	Not stated
Vinemoor	Nov. 1	Disabled	37:00N., 17:00W.	Crank shaft
Vaucluse	Nov. 2	Disabled	Lisbon	Machinery
Woodcote	Oct. 29	Collided bridge	London	Port upper works
Westpool	Nov. 26	Disabled	Lat. 45:39N, lon. 12W	Lost prop.
Weralma	Nov. 25	Fire	Conjock Bay	Not stated
Whitebelle	Dec. 1	Ashore	Nr. Beaver Harbor	Badly
W. W. Atterbury	Dec.	Struck dock	Soo	Rudder
Waialeale	Dec. 7	Struck pier	Honolulu	Amidships
West Quechee	Dec. 8	Fire	Bishops Rocks	No. 5 hold
Yezo	Nov. 23	Disabled	W. of Lundy	Leaking
Zebedee E. Cliff	Nov. 15	Aground	Rockport	Not stated

Late Flashes On Marine Disasters

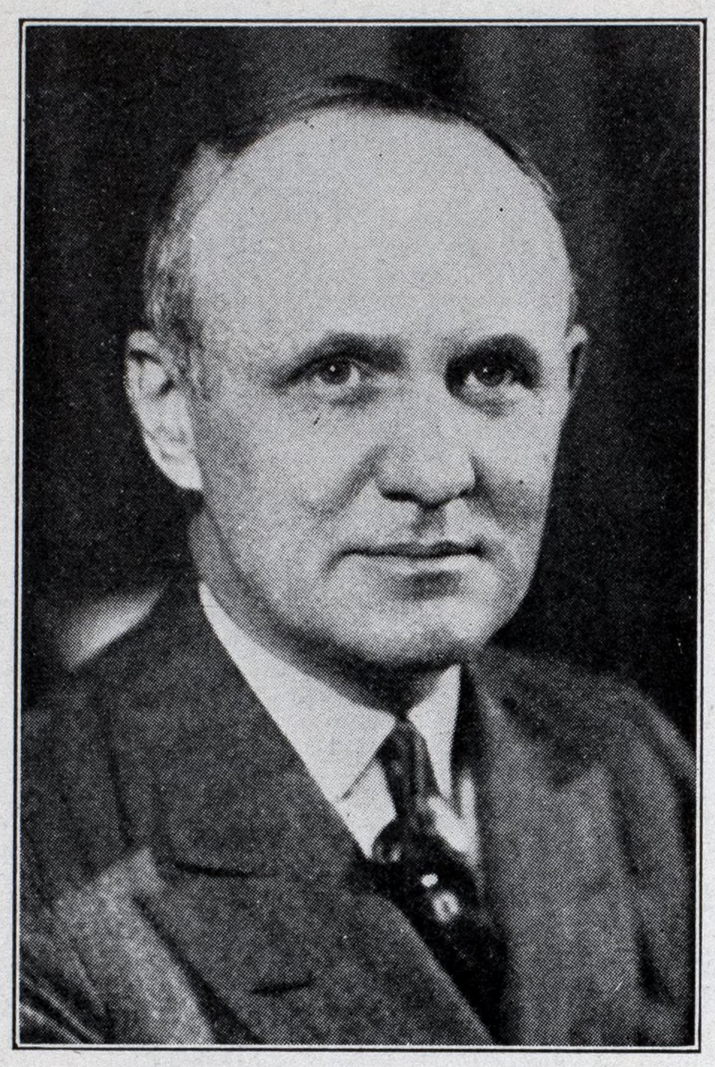
Brief Summaries of Recent Maritime Casualties— A Record of Collisions, Wrecks, Fires and Losses

Name	Date	Nature	Place	Damage Resulting
Alma T	Dec. 12	Fire	Off Cape Cod	Total loss
Albuera	Dec. 8	Explosion	35N., 12 W.	Decks
Arthur	Dec. 5	Collision	Wapping	Port side
Antonietta	Dec. 10	Sank	Gibraltar	
Aral	Dec. 11	Fire	Bayonne	Damaged
Adlingfleet	Dec. 7	Collision	Goole	Not stated
Agnar	Dec. 13	Disabled	Stavanger	Machinery
Agii Victores	Dec. 17	Sank	Salonica	
Amerikaland	Dec. 17	Collided dock wall	Coquimbo	Not stated
Assia	Dec. 15	Collision	Oran	Starboard side
Agnar	Dec. 19	Sprang leak	Off Lister	Sank
Alicia	Dec. 19	Disabled	Off Lowestoft	Machinery
Amazon	Dec. 19	Ashore	St. Nazaire	Floated
Antje	Dec. 19	Disabled	Esbjerg	Machinery
Alto	Dec. 20	Collision	Lower Hope Pt.	Bow
Ambridge	Jan. 10	Collision	Norfolk	Considerable
Aagtekerk	Dec. 22	Struck sbmgd. obj.	Smyrna	Forehold
Alafia	Dec. 26	Disabled	East of Tyne	Not stated
British Courage	Dec. 5	Fire	Lat. 34 N lon. 24E	Damaged
Blendor	Dec. 6	Not stated	Off Gothenburg	Total loss
Bolkeim	Dec. 10	Aground	Flekkefjord	Not stated
British Thrift	Dec. 13	Stranded	Redcar	Floated—engine
Batavier	Jan. 2	Collision	River Elbe	Not stated
Bupetnethe II	Dec. 17	Collision	London	Not stated
Bengal Maru	Dec. 20	Collision	Shimonoseki	Above water line
Belt	Dec. 21	Aground	Blackwall Point	Floated
Baltara	Dec. 22	Collision	Rotherhithe	Not stated
City of Agra	Dec. 3	Collision	Flushing Roads	Forward
Canadian Highlander	Dec. 6	Disabled	Auckland	Propeller
Cypria	Dec. 5	Aground	Quilleboeuf	Leaking
Catherine Ethel	Dec. 6	Aground	East Roads	Floated—leaking
Chatton	Dec. 6	Aground	Bizerta	Propeller
Casper	Dec. 24	Fire	London	Not stated
Ciudad Del Salto	Dec. 11	Struck quay wall	Monte Video	Bows
Crefeld	Dec. 30	Collision	Baltimore	Damaged
Crosholm	Dec. 29	Disabled	Charleston	Engine
Canonesa	Jan. 3	Disabled	Falmouth	Turbine
Chimaera	Dec. 18	Ashore	Montrose	Steering gr.
City of Los Angeles	Dec. 13	Disabled	San Pedro	Propeller
Capitaine Damiani	Jan. 9	Disabled	Malabata Point	Engine
Consul Hintz	Dec. 11	Collision	Nr. Brunsbuttelkoog	Port side
Dante Alighieri	Dec. 28	Struck sbmgd. obj.	Cape Porpoise	Sank
Delfina	Dec. 17	Sank	Point Lynas	
Duckwitz	Dec. 19	Ashore	Isafjord Deep	Not stated
Dorie	Dec. 21	Collision	Rosario	Above water line
Duris	Dec. 23	Ashore	Harwich	Floated—bottom
Danube No. 66	Dec. 26	Sank	Canada Dock	
El Oriente	Dec. 14	Aground	Nr. Liberty	Floated
Edward B. Winslow	Dec. 13	Disabled	Lat. 40:27N lon. 71:50W	Not stated
Erissos	Dec. 2	Struck pierhd.	Calais	Propeller; rudder
Einigkiit	Dec. 6	Ashore	Nr. Thiessow	Floated
Eidsvold	Dec. 9	Aground	Maaloysund	Floated—forepeak
Erie Barge	Dec. 30	Fire	New York	Considerable
Ewell	Dec. 17	Collision	London	Port side
Evvivia	Dec. 31	Ashore	Off Georgetown	Not stated
Elster	Dec. 20	Stranded	Sittahattu	Leaking
Ericsson	Jan. 5	Aground	Off Reedy Point	Not stated
Fortunate	Dec. 20	Not stated	41.42N; 6.9 E	Abandoned
Fukuko Maru	Dec. 19	Gale	Idzu	Aground
Fairport	Jan. 9	Sank	New York	
Florence Luckenbach	Dec. 26	Ashore	Columbia River	Floated
Georgina M	Dec. 15	Collision	Off Cape Cod	Sank
Galtymore	Dec. 18	Fire	Bremen Roads	No. 5 hold
Garm	Dec. 4	Aground	Zuider Zee	Rudder
Glenaen	Dec. 7	Collision	Goole	Bow; forepk.
Grosvenor	Dec. 13	Collision	Lune Deeps	Port bow; plates
Glenluce	Dec. 14	Collision	River Scheldt	Not stated
Gov. John Lind	Dec. 30	Collision	Baltimore	Damaged
Gard	Dec. 21	Ashore	Laso	Floated
Gertrude	Jan. 8	Fire	New York	Considerable
Garu	Dec. 23	Ashore	Lemvig	Not stated
Hokuto Maru	Dec. 4	Sank	Nr. Hakodate	
Halcyon	Dec. 7	Ashore	Skegness	Not stated
Hampholm	Dec. 19	Collision	English Bay	Stem
Hammershus	Dec. 9	Collision	Copenhagen	Sank
Henrich Peters	Dec. 13	Aground	River Weser	Floated
Hegira	Dec. 22	Aground	Off Spring Point	Damaged
Hakubasan Maru	Dec. 27	Disabled	San Francisco	Engine
Harald	Jan. 2	Collision	River Elbe	Sank
Hanover	Dec. 30	Collision	Takyo	Side
Hermia	Dec. 19	Struck quay wall	Marseilles	Stem; plates
Helping	Dec. 20	Collision	Dublin	Stern; leaking
Henrietta	Jan. 7	Sank	Off Pt. Lookout	
Itaipu	Dec. 5	Struck sbmgd. rock	Pernambuco	Bottom
Izabran	Dec. 6	Gale	Alexandria	Capsized
Iskra	Dec. 12	Disabled	Off Pichidanque	Lost prop.
Ingertre	Dec. 5	Aground	Oeresund	Plates; tanks
Joseph M. Cudahy	Dec. 11	Collision	Jacksonville	Damaged
Jacinth	Dec. 6	Struck sub. object	Londonderry	Leaking
Juana Ipland	Dec. 10	Disabled	Cape Hoca	Rudder
Japan	Dec. 14	Ashore	River Scheldt	Not stated
Kate	Dec. 7	Stranded	N. Scroby Sand	Abandoned
Kari Skogland	Dec. 13	Ashore	Copenhagen	Not stated
Kobe	Jan. 3	Disabled	Lat. 37:04N lon. 51:38W	Stern; rudder
Kimacayo Maru	Dec. 30	Collision	Takyo	Not stated
Kassos	Dec. 20	Disabled	Flushing	Machinery
Kongedybet	Dec. 26	Aground	Sandhamn	Not stated
Lina Perrone	Dec. 13	Ashore	Licata	Not stated
Lago	Dec. 18	Ashore	Villa do Conde	Total wreck
Lombard	Dec. 20	Disabled	Flamboro Head	Not stated
Leopold L. D.	Dec. 20	Aground	Bermuda	Considerable
London Mariner	Jan. 7	Collision	Off Reedy Island	Plates
Lackawanna	Dec. 27	Struck quay	Liverpool	Stem
Marie Ferdinand	Dec. 3	Collision	Off Oland	Badly
Matinana	Dec. 3	Struck quay wall	Marseilles	Stem
Monceau	Dec. 3	Struck quay	Dakar	Plates
Minster	Dec. 6	Collision	Dover	Stem
Mevania	Dec. 20	Stranded	Tampico	Considerable
Mabel Gale	Dec. 23	Sank	Off Lobos Island	
Marie Rose	Dec. 8	Collision	Off Dieppe	Sank
Morinda	Dec. 11	Aground	Nr. Dedele Pt.	Floated
Miyo Maru	Dec. 20	Collision	Shimonoseki	Above water line
Marouka Pateras	Dec. 20	Collision	Lower Hope Point	Port quarter
Matthew S. Greer	Jan. 7	Gale	Kettle Cove	Total loss
Mary Patricia	Jan. 4	Collision	Halifax	Leaking
Neptus	Dec. 2	Sank	So. of St. Pierre	
Niobe	Dec. 15	Aground	Nr. Cuxhaven	Rudder
Norham	Dec. 22	Ashore	Bridlington	Floated
Norefjord	Jan. 9	Disabled	Halifax	Steering Shaft
Orion	Dec. 3	Collision	North Sea Canal	Damaged
Ostsee	Dec. 11	Ashore	Finsnes	Floated
Ocmulgee	Dec. 26	Disabled	St. Michaels	Boilers
Ortega	Jan. 1	Fire	London	Engine room
Orvieto	Dec. 20	Stranded	Dudgeon Shoal	Floated
Ostrich	Dec. 20	Disabled	Lowestoft	Engine
Olga	Jan. 4	Ashore	Off Jupiter Inlet	Engine
Ole Aarvold	Jan. 14	Disabled	Aberdeen	Lost prop.
Ornentof	Dec. 25	Stranded	Redcar Rocks	Floated-leaking
Pennsylvania	Dec. 5	Disabled	Belfast	Propeller
President Adams	Dec. 6	Struck reef	Alexandria	Port side
Princess Adelaide	Dec. 19	Collision	English Bay	Amidships
Patria	Dec. 11	Aground	Savona	Floated
Parisienne	Dec. 30	Aground	St. Pierre Miquelon	Badly
Paul Lecat	Jan. 1	Fire	Marseilles	Total loss
Pinna	Dec. 21	Ashore	Cagayan Islands	Floated
President Adams	Jan. 11	Ashore	Panama Canal	Floated
Quintero	Dec. 6	Collision	Off Punta Pitache	Sank
Ronturn	Dec. 4	Aground	Buenos Ayres	Floated
Raisdale	Dec. 10	Aground	Sourabaya	Floated
River Loyne	Dec. 13	Collision	Lune Deeps	Stern plates
Reinunga	Dec. 25	Disabled	London	Machinery
Rassay	Dec. 18	Aground	Off Hansweerd	Floated
Roedelheim	Jan. 6	Abandoned	Lat. 47: 50 N Long.	44W
Skari Skogland	Dec. 13	Aground	Elephant Shoals	Not stated
Seminole	Dec. 11	Collision	Jacksonville	Stern qt.
Sumatra	Dec. 3	Collision	North Sea Canal	Damaged
Stenbjorn	Dec. 11	Stranded	Oland	Not stated
Starr	Dec. 11	Disabled	Seward, Alaska	Propeller
Swallow	Dec. 19	Collision	Wapping	Bow
Senator Schafer	Dec. 10	Aground	Vardo	Bottom; forepeak
Sunewarkco	Jan. 7	Aground	Off Davis Island	Floated
Talanton	Dec. 10	Disabled	Bona	Machinery
Titos	Dec. 17	Collision	Piraeus	Damaged
Triton	Dec. 15	Ashore	Scharhoern	Leaking
Topsey	Jan. 9	Sank	New York	
Tokwo Maru	Dec. 25	Ashore	Rishiri Island	Total wreck
Virgo	Dec. 3	Collision	Mariehamn	Ashore
Valk	Dec. 4	Aground	River Scheldt	Floated
Valfiorta	Dec. 10	Collided quay wall	Naples	Port side
Vaclite	Jan. 7	Collision	Off Reedy Island	Above water line
Vera	Dec. 22	Sank	Southwark	
Vestfos	Dec. 22	Aground	Fredriksstad	Floated
Wingatui	Dec. 7	Aground	Dunedin	Pump engine
West Totant	Dec. 21	Ashore	Nr. Bangor, Ireland	Floated
Whitebelle	Dec. 24	Ashore	Beaver Harbor	Total loss
Willsolo	Jan. 10	Collision	Norfolk	Considerable
Wandle	Dec. 22	Collision	Rotherhithe	Starboard side
Wawenock	Jan. 11	Ashore	Off Deere Isle, Me.	Not stated
West Ekonk	Dec. 23	Collision	Gravesend	Port bow
Wooler	Dec. 26	Struck pier head	Ramsgate	Stem; port bow; above water line

Personal Sketches of Marine Men

Paul W. Chapman, Banker, New Owner of the United States Lines, Inc.

By H. R. Simonds



COMPLETELY practical and thoroughly experienced in the ways of finance and business, he also has the rarer faculty of visualizing future possibilities without fear.

TRAINED as a banker his business has been to bring brains and money together. This he has done with such success that he believes it will work in shipping.

HE IS looking forward to the time when the United States lines can offer the traveler transportation all the way from Paris to Chicago by air and water.

"WHY did we buy the United States and Merchant lines?" replied Paul W. Chapman. "Because I felt it to be sound business." That in brief is the story behind the recent purchase. Mr. Chapman as a successful banker has purchased many public utilities and business enterprises, and his recent entry into the field of the American merchant marine is just another such purchase on the part of his firm.

Paul W. Chapman was born on a farm in Illinois near the little town of Jerseyville. The farm itself is in Jersey county about 40 miles north of St. Louis, and is now owned by Mr. Chapman. His father, in addition to being a farmer, owned a small bank in Jerseyville, and it is probably this association that first led Mr. Chapman into the banking field. After graduating from the Jersey County high school, he promptly entered the business which has been his life work.

He says he only had one job in his life. In 1899 he started work for N. W. Harris & Co., Chicago, at $7 a week. Twelve years later be started in the banking business for himself, and has been continuously successful since then. He explains his success by the fact that early in life he recognized the necessity of bringing brains and money together in the development of American industry. His activity has been just that—the bringing together of brains and money. Although his interests have covered a large range, he has been particularly concerned with utilities and transportation. In considering the business of shipping by water, he draws analyses from land transportation. He feels that the recent experience of this country's railroads in changing, with marked improvement in service and earning capacity, from public to private operation is an excellent augury of what may be expected in the transference of shipping operations from public to private hands.

A few years ago, Mr. Chapman took over the Hoboken Shore railway, and by adopting sound business principles changed the property from a liability to an important earning unit.

He built up his present banking company in Chicago, but he now has offices both in Chicago and New York. His company also maintains 13 branch offices in leading cities.

In 1903 at the age of 23, Mr. Chapman married Joanna Norton Highley of Springfield, Ill. They now have four boys and one girl and they call Highland Park, near Chicago, their home, although at present they are living at Greenwich, Conn., on account of the children's schooling. The oldest son, Paul Chapman Jr., is in his father's office, and the second son is attending Yale.

Although Mr. Chapman claims to be a man without hobbies, he has so many diversified business interests, that some of these may well fall in line as recreational enthusiams. He has turned with great vigor and vision to the airplane industry in which field he owns Sky Lines, Inc., and has recently built a 20 passenger monoplane with a 90-foot wing span. Ultimately he plans on linking up air travel with ocean navigation, so that a person in Paris, for instance, desiring to go to Chicago will book through passage, flying first to the port then boarding a vessel for New York, and then flying from

New York to Chicago in a modern deluxe passenger plane.

To his interest and confidence in his associates, he attributes much of his success. He says others do the hard work for him.

Mr. Chapman is a mild mannered straight forward man of simple habits. Although keen, and active and indefatigable in his work he never seems to be hurried and is entirely free from the nervousness frequently associated with men of such wide interests. He says he never takes any exercise when he can avoid it, but he adds that he has never been sick in his life, nor had a day away from work due to poor health. This he attributes to the fact that he eats very little, scarcely more than half the food ordinarily supposed necessary. He is a member of the Greenwich Country club, but seldom plays golf according to his own statement.

Williams Line Is Sold to American-Hawaiian

The sale of the Williams Steamship Co. to the American-Hawaiian Steamship Co., one of the dominant companies in the coast to coast service, was recently announced by George T. Williams, president. The property will be transferred to the Williams Line Inc., formed under the laws of Delaware, of which the controlling interest is held by the American-Hawaiian Steamship Co. The vessels involved are the WILLZIPO, WILLKENO, WILLBORO, WILLPOLO, WILLHILO, WILLSOLO and WILLFARO, and no important change is expected to be made in their present operation in the intercoastal trade.

Acquisition of the Williams fleet gives the American-Hawaiian line a total of 29 cargo ships, of which two are motorships, aggregating approximately 297,000 deadweight tons. Most of the vessels are capable of a speed in excess of 11½ knots. In addition, the company has acquired a substantial interest in the new Pacific-Atlantic Steamship Co., recently organized by Kenneth D. Dawson and associates of Portland, Oreg., and is also joint owner with the Matson Navigation Co. of the Oceanic & Oriental Navigation Co.

Sell Remaining Tankers

Complete retirement of the shipping board from another phase of the shipping business is contemplated in proposals to sell five remaining tankers of a fleet which at one time numbered 143. The shipping board directed the Merchant Fleet Corp. to prepare advertisements and to advertise the vessels for sale.

Bids were received by the shipping board on April 19 for these five tankers.

The highest bid was from the Antietam Steamship Corp., Philadelphia, with an offer of $2,649,686.53 in a lump sum; also separate bids for each of the tankers as follows: BALDHILL, $477,684.75; BALDBUTTE, $514,876.75; HAGAN, $425,848.40; METON, $545,276.63; DILWORTH, $631,000.

Other bids were received from C. D. Mallory, New York; T. P. Gallagher & Co. Inc., New York; City Service Transportation Co., New York; T. T. C. Gregory, San Francisco; Richfield Oil Co., Los Angeles; and the Atlantic Refining Co., Philadelphia. These bids varied from $335,000 for specified tankers up to $490,000 offered by the Richfield Oil Co. for the tanker DILWORTH. It is apparent from these bids that there is an active demand for tanker tonnage.

On April 24 the shipping board approved the sale of the five tankers to the high bidder, the Antietam Steamship Corp., for $2,649,683.53.

For Diesel Conversion

On April 2 the shipping board authorized the sale of the S. S. GEORGE E. WEED to the Flood Lines, Inc., San Francisco for the sum of $20,000 cash with the stipulation that the vessel be converted to diesel propulsion within a period of 18 months. The betterments agreed to will involve an outlay of approximately $400,000. The vessel is a steel cargo steamer of 8747 deadweight tons.

Correction Is Noted

We have received the following letter from E. C. Gillette, acting commissioner of lighthouses, department of commerce, bureau of lighthouses, Washington, with reference to our April distinctive ship issue:

"The data on pages 70 and 71 therein appears, however, to be in error in certain particulars and corrections should be made to accord with the facts which are given as follows:

"The Albina Marine Iron Works, Portland, Oreg., are the contractors for three diesel electric propelled lightships now under construction and numbered 100—113—114, each having a displacement of 630 tons in salt water, shaft horsepower of 350.

"The Charleston Dry Dock & Machine Co., Charleston, S. C., is also contractor for three diesel electric propelled lightships now under construction and numbered 115—116—117, each having a displacement of 630 tons in salt water, shaft horsepower of 350."

A New Marine Finance Company Formed

Increasing interest in the American merchant marine on the part of bankers is indicated in the recent formation by Freeman & Co., New York, and associates, of the Merchant Marine Finance Corp. The new company, organized under the laws of Delaware with a capital of about $10,000,000, is said to be the first ever formed in this country for the specific purpose of financing American shipping enterprises. In addition to the direct financing of ships and shipping lines, the company will include the ownership of stock interest in various shipping companies. Ernest L. Nye of Freeman & Co., an outstanding authority on railroad equipment obligations, will be president of the new corporation.

As an initial piece of business, under the provisions of the new shipping act, Freeman & Co. and the Chemical National Co., Inc., have underwritten bond financing for the Pacific-Atlantic Steamship Co., recently incorporated in Delaware by Kenneth D. Dawson and associates to operate under the name of the Quaker line a fleet of 18 intercoastal freighters aggregating 160,000 deadweight tons. The fleet includes vessels purchased from the California & Eastern and Arrow lines as well as those formerly operated by the Interocean Steamship Co. under the name of the Quaker line.

Board Sells Freighter

The shipping board authorized the sale of the S. S. WEST HOSOKIE to the Los Angeles Steamship Co., Los Angeles, for the sum of $82,000. The vessel will be added to the intercoastal fleet maintained by her purchaser. She is a steel cargo ship of 8551 deadweight tons equipped with General Electric geared turbines and scotch oil burning boilers. She has been in lay-up at Norfolk since January, 1921.

The tanker AGWIMEX of the Atlantic Gulf & West Indies Steamship Lines has been purchased by the Gulf Refining Co. The vessel is to be operated from Venezuela to Philadelphia.

Automobiles Via Lakes

(*Continued from Page* 36)

to pass through the barge canal. According to available information these vessels would have a length of 240 feet, a beam of 39 feet, a molded depth of 16 feet and would have two cargo carrying decks. The carriers would be so constructed as to permit driving the automobiles on tracks through the stern onto both decks and in case of unloading, out through the bow. The capacity of these vessels would be 162 cars of the Cadillac size for instance. Although engaged primarily in the transportation of automobiles, the boats would carry sufficient deadweight cargo on the return trip to insure loading down to a safe clearance of the bridges.

Ship Automobile Parts by Water

In addition to the shipping of assembled cars, there is a very substantial movement of automobile parts to points of assembly and export. The Minnesota-Atlantic Transit Co., during the past few years has operated the motorships TWIN PORTS and TWIN CITIES in hauling large cargoes of automobile parts from Detroit to New York city. Classified as fourth class, the saving on a movement of 15,000 tons of automobile parts and accessories through the barge canal to eastern New York territory would amount to 60 cents a ton or $9000 for the total shipment of 15,000 tons.

It may be asked to what extent the largest manufacturers of automobiles make use of water shipments. Figures are given in Table V, page 36 for the number of cars shipped by the largest users of water transportation.

Attitude of Manufacturers Favorable

The White Motor Co. does not use the lakes to any great extent on account of reasons given in a letter by A. J. Henderson, traffic manager of the company as follows:

"We might send a great many more shipments by boat if it were not for the fact that the side ports of the vessels are not made long enough to accommodate big machines such as we are building. We are building busses and heavy duty machines that require openings that are up to 9 feet 4 inches high and 8 feet 6 inches wide and there are only two or three ships on the lakes that have ports that would accommodate vehicles of that size. We would like to ship more of our products by water if it were possible to do so, as we believe in patronizing our natural resources wherever possible and will continue to do so as long as the facilities offered by the carriers are ample for our purpose."

The Reo Motor Car Co., Lansing, Mich., does not make use of the lake routes because of the inland location of the company. A number of dealers in Reo motor cars have automobiles driven from Lansing to Detroit for boat shipment to Cleveland and Buffalo and points east but the company has no way of determining the number of such shipments. The Chevrolet Motor Co., Detroit, reports that while some of its automobiles are accepted by dealers at Flint, Mich., and driven overland from that point, the company does not ship its cars by lake vessels.

The Ford Motor Co. states that as a general rule it does not utilize the Great Lakes to any great extent for the transportation of set-up automobiles. This is due to the fact that it operates assembly plants in practically all the large ports on the Great Lakes, having plants in Chicago, Cleveland, Buffalo, Detroit, Minneapolis and St. Paul. During 1928, the Ford company shipped a considerable number of automobiles from Detroit to Cleveland, but this was due to the company's having just begun production on the new model "A" Fords. Buick Motor Co., Flint, Mich., states that inasmuch as the factory is located about 65 miles inland from Detroit, it does not ship its cars by lake vessel. A letter from the company stated that "every season there are quite a number of Buick cars shipped by steamers on the Great Lakes but these cars are driven from our factory by the owners or their representative who make their own arrangement with the boat lines for transportation and we have no record of how many cars are handled in this manner."

Further Expansion Is Possible

It is reasonable to assume that those companies who do take advantage of the water route for shipping their cars have become convinced by actual experience of the economy and other advantages of water shipment. The favorable results obtained by those companies now making use of water transportation prove that this mode of shipping warrants a wider acceptance by automobile manufacturers, even though their plants may be 100 miles from a lake port. The fact that the manufacturing plants are not located on the lakes is no reason for not taking advantage of the money-saving features of water shipment.

Methods of overland delivery in connection with the water movement have been developed so that distance from lake ports now means little or nothing. One of these methods is the trailer delivery service where the cars are placed on a specially constructed trailer-truck. A service of this kind is being operated by the Madden Bros. of Duluth. They transport cars from St. Paul and Minneapolis, carrying six to eight on a single trailer.

Four Freighters Sold by Shipping Board

Sale of the S S WEST BRIDGE and S S WEST WAUNEKE, for the sums of $57,000 and $73,000 respectively, to Sudden & Christenson, San Francisco was approved by the shipping board March 26.

The WEST BRIDGE is a steel cargo steamer of 8594 deadweight tons equipped with De Laval turbines and Scotch oil burning boilers, designed to steam at 10¼ knots. The vessel has been laid up at Philadelphia.

The WEST WAUNEKE is a steel cargo steamer of 8635 deadweight tons equipped with General Electric turbines and Scotch oil burning boilers designed to steam at 10¼ knots. She has been laid up at Philadelphia since January 1921. Both of these ships will be used to supplement their owner's intercoastal fleet.

On March 26, the board also approved the sale of the S S WESTBROOK to the Shepard & Morse Lumber Co. of Boston, for the sum of $90,000. The vessel is a steel cargo steamer of 8640 deadweight tons, equipped with General Electric turbines and Scotch oil burning boilers designed to steam at 10¼ knots. She has been laid up at Philadelphia since February 1922 and when made ready for service will be used in the intercoastal trade.

The board also approved the sale of the S S DEMOCRACY to the Charles Nelson Co. San Francisco for the sum of $79,000. The vessel is a steel cargo steamer, 7323 deadweight tons.

To Sell Laid-up Ships

The shipping board April 5 directed the Merchant Fleet Corp. to advertise for sale a total of 23 vessels which have been laid up for more than seven years. Sale will be based on proposals to scrap the vessels completely or to convert them to barges or diesel propulsion. Bids will be opened May 7 at 11 a. m.

The ships are of steel and cargo type aggregating 198,962 deadweight tons. The vessels are now laid up as follows: 11 at Norfolk, nine at New York and three at Philadelphia.

Leviathan Transfer Is Completed

(*Continued from Page* 18)

their defense and security in time of national emergency.

"We cherish the confidence which this trust imposes and we dedicate ourselves and our resources to its entire justification.

"This enterprise is one of and for the people of the United States of America to place its merchant marine in a position commensurate with the importance of its foreign commerce.

"This is an age in which service is the greatest moving force. Service to mankind is the common aspiration of our people. It is by rendering service first of all to our country's interests that we propose to earn success and the approbation of the American public.

"With our people awakened as they are to the importance of a merchant marine owned and operated by private citizens, there can be no doubt of an accomplishment that will be a source of national pride.

"I thank you with all my heart for honoring us with your presence here today and for the assurances of your continued co-operation."

To the tune, "Columbia, the Gem of the Ocean," the old house flag was lowered and supplanted by the new one, which was attached to the halyard and raised by Miss Joanna Chapman, the 15-year-old daughter of the new owner. Miss Chapman performed her duty with the poise and grace which seems to be characteristic of young girls generally when they officiate in such ceremonies. The new house flag has a white background with a red star in the upper left-hand corner and a blue triangle enclosing the letter Y in the center. This triangle is Mr. Chapman's insignia and is used by him on all his business stationery.

Joseph E. Sheedy, executive vice president of the United States Lines Inc., presented to Commodore Harold A. Cunningham, master of the LEVIATHAN, with his new commission. The commission, which was read to the assembly by Commodore Cunningham, notified all and sundry that Harold A. Cunningham is master of the LEVIATHAN and commodore of the fleet. The commodore pledged the new owners that he and his staff of officers and crew would continue to give their best to make the new venture a success.

Among those present were Commissioners Albert H. Denton and S. S. Sandberg; Maj. Gen. Hanson E. Ely, commandant at Governor's Island; Capt. R. D. Gatewood, head of the shipping board department of maintenance and repair; J. Harry Philbin and William L. Bunker, vice presidents of the new United States Lines Inc.; David A. Burke, general manager of the United States Lines Inc., who later is to be vice president; Emmett J. McCormack, vice president of Moore & McCormack; John P. Magill, ship broker and representative of the New York Maritime exchange; Dr. Harry A. March; Capt. John F. Milliken, secretary-treasurer of the Neptune association; Bruce Barton; "Bill" McLaughlin, well-known Sandy Hook pilot who brings the LEVIATHAN in and out of New York harbor, and many others.

Everything was spick and span on the LEVIATHAN for the occasion and the great ship never has shown to better advantage. The ceremony took place on an unseasonably warm day under a bright sun, so that shipping men, who always have an eye on the weather, believed the auspices under which the new line was starting were entirely favorable.

A Modern Survey Vessel for Nigeria

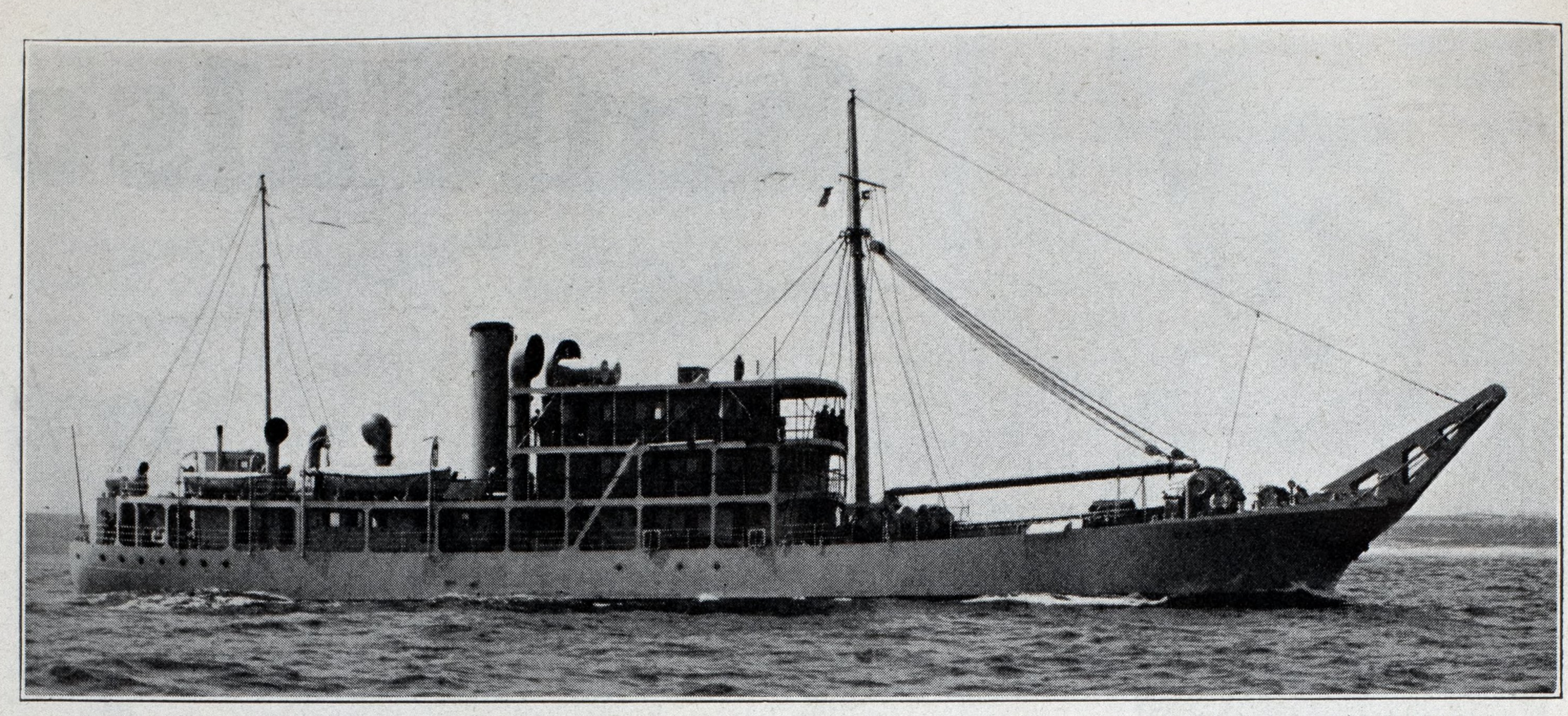
A VESSEL intended for buoyage and survey work for the Nigerian government was recently completed in England. This vessel was built to the order of the Crown agents for the colonies and she has been named DAYSPRING. The new vessel is of twin screw design. The buoys to be handled weigh 12 tons and are moored with 2½-inch cables with 3-ton sinkers. The DAYSPRING will be employed in lifting and breaking out these buoys and sinkers in rough water. The hull and lifting gear of the vessel have been designed to meet the heavy strains produced by service of this nature.

The hull is fitted with a double bottom. In the double bottom are ballast tanks. Tanks Nos. 1 and 2 are divided fore and aft to form port and starboard trimming tanks. There are two fresh water tanks in the after part of the hold each of 50 tons capacity.

There is a special winch with a cylindrical barrel grooved to take 4½-inch wire. The barrel is 3 feet in diameter and is fitted with a clutch and screw down hand brake. On the projections of the shaft are 18-inch diameter warping ends also fitted with clutches and screw-down brakes. The winch is able to exert a pull from the barrel of 20 tons on a single wire and of withstanding a working strain of 30 tons. Special stiffening is provided for the deck in way of this winch. This is a unique feature.

There are two steam winches fitted on the main deck forward. These winches are able to lift a 20-ton weight on the derrick. There is a powerful steam windlass on the main deck forward. The engine for driving the windlass is located on a forepeak flat below. The equipment consists of two stockless anchors. Four capstans 8 x 8 inches are fitted on the main deck, two amidships and two aft. Each capstan is able to exert a 5-ton pull at 70 feet per minute.

Officers accommodations are located at the forward end of the boat deck. The captain's quarters and chart room are located on the bridge deck. In the same space there is also a spare



SURVEY AND BUOYAGE VESSEL DAYSPRING BUILT IN ENGLAND FOR USE BY THE NIGERIAN GOVERNMENT

cabin and a large cabin de luxe.

Petty officers and six boys have quarters on the main deck amidships. Adjacent to this space is the European galley. The native engine room and deck crews are quartered aft on a 'tween deck flat below the main deck.

A steam steering engine is fitted to work directly on the rudder post. For refrigeration purposes there is a vertical electrically driven machine capable of abstracting 18,000 to 19,000 b.t.u.'s per hour when working with circulating water of 90 degrees Fahr. and brine at zero. The coal chamber has a capacity of 300 cubic feet. There is a complete electrical installation on this vessel, the current being supplied by two steam driven dynamos located in the engine room.

Main Propelling Machinery

The main propelling machinery of the DAYSPRING consists of two triple expansion inverted, direct acting, surface condensing, steam engines. The condenser is of the uniflux type and is common to both engines.

Two separate bilge and ballast pumps are installed each capable of discharging 50 tons of water per hour. There is also a turbine driven centrifugal high-lift fire pump, designed to work at full boiler pressure.

Steam is supplied by two cylindrical, single ended multitubular marine type boilers working at a pressure of 180 pounds per square inch.

The DAYSPRING was built by Sir W. G. Armstrong, Whitworth at the Walker-on-Tyne shipyard. She is being delivered to Lagos, Nigeria. Her principal dimensions are; length on the water line, 190 feet, breadth, 36 feet, depth molded, 18 feet 6 inches and draft 12 feet.

Aid for Cargo Ships

(*Continued from Page* 28)

be building yards capable of turning out replacements and meeting new needs. While the problem of traffic, manning and operating may be regarded as practically solved, the differential in the cost of tonnage built in this country under present conditions cannot possibly be overlooked.

The maritime nations of the world have built some 1550 ocean going vessels in eight years, aggregating 9,800,000 gross tons. At the same time about 40 vessels, aggregating 400,000 tons, have been built in American yards in that period. The average age of American cargo ships is in excess of ten years. In about ten years at the present rate of building, considering that the useful life of a ship is twenty years, some Macaulay will then be predicting that an American will be standing on the bridge of a lonesome ship, scanning the horizon in vain for a craft bearing the flag of his country. Cargo ships at the parity of foreign costs, mean assistance to the shipbuilder. There are many private shipowners of cargo vessels in overseas trade who have not felt the pecuniary stimulus of $6 to $30 per deadweight ton for ships plus mail pay but who feel that at equal costs they can compete with the privately owned cargo ships of other countries.

Cargo Ship Should Receive Aid

While the merchant marine act of 1928, known as the Jones-White act, was progressive and helpful, it must be recognized that it does not extend the same help to strictly cargo vessels, which really make up the bulk of the American tonnage and in which the greatest interest lies in so far as the shipping public is concerned, as it does to vessels carrying passengers and mails. Such additional help would permit the shipbuilding industry to proceed with the design and construction of new modern tonnage in advance of the needs of American shipowners on various trade routes and this work could be carried on in such a way as to effect economies in the cost of building ships in this country.

It cannot be contended that the provisions already made for replacement of units engaged on former government services furnish the key to the problems of the American shipbuilding industry, for the number of additional ships which may be needed on such services and the number of units to be replaced within the next few years, is a factor of insufficient intrinsic potentiality to afford the shipbuilding industry a source of orders in keeping with the character, extent and number of its plants. The present law enables shipowners to obtain loans for the acquisition of new ships, but it does nothing to encourage the shipbuilder to go ahead of the demand and use his own resources to bring into being types of ships best adapted to the needs of American shipowners on the various trade routes.

Foreign trade gives an economic benefit to all those who have been concerned in it, alike to producers, dealers, carriers or consumers, and every step in its progress of recent years clearly shows that the future development of American shipping and shipbuilding is not predicated upon a decrease in the material well being of other shipowners or shipbuilders.

British Marine Affairs

(*Continued from Page* 21)

is the 12,500-ton oil tanker built by Scott's Shipbuilding Co., of Greenock, for American owners, which also is motor driven. It is expected that the power on the new White Star liner will be about 100,000 horsepower. The engines will be coupled to generators which will supply current to the electric motors turning the four propeller shafts. It is expected that the Cunard line will endeavor to surpass the White Star mammoth when placing an order for a new liner of their own.

It will be seen from the above list of recent contracts and launchings that British shipbuilding is maintaining its leading position in the world. It is of interest to note that shipbuilding prices have substantially fallen. Two years ago the price of a new cargo ship was around £10 ($50) a ton. Today cargo vessels are being built for just about £8 ($40) a ton. On the other hand, a few of the leading shipbuilding firms have registered increasing profits in 1928. Ship-repairing in the Liverpool district has been active.

The activities of the freight market have been irregular, partly owing to weather conditions. At the beginning of the year the chartering markets presented fairly well balanced conditions in the matter of supply and demand. More recently the volume of business was somewhat restricted. However, the outlook is not too unsatisfactory and there have been good bookings for the River Plate at stable rates. From Liverpool it is reported that grain business in North America and the north Pacific has been poor. In the eastern deep sea trades there has been some activity in Australian grain for India. Ore chartering from the Mediterranean has been well maintained, while a fair amount of tonnage has been taken up in outward coal at satisfactory rates. At Newcastle there has been a strong demand for prompt tonnage in the near continental and coastal trade, and rates have been firm.

The accompanying chart of index numbers, compiled from *The Statist*, London, shows that freight rates have been maintained fairly well above last year's average, although not quite so high as at the end of the year. Characteristic average rates at the end of the first quarter of this year were as follows: For grain from the North Pacific coast for April-May loading, 30s; this is a low rate and it is hoped that requirements from Montreal and the Argentine will stimulate the market. Rates from the River Plate to the United Kingdom and the continent are about 24s, April-May loading. Chilean nitrate has been done for Bordeaux-Hamburg at 26s 6d. Coal from Cardiff to the Near East is about 10s 9d, and ore from Bilbao to Cardiff averages 6s 3d, April loading.

British Ports Maintain Activity

The activities of the British ports during the first two months of the year have been pretty well on the same level as during the corresponding period last year, entrances having decreased, but clearances having increased by a corresponding amount. The entrances at British ports during January and February included 7610 vessels, trading foreign, aggregating 8,588,302 tons, as compared with 8234 vessels of 8,748,835 tons for the first two months of last year. Of this year's tonnage, 18.3 per cent came from the Atlantic coast of North America, as against 16.9 a year ago. The total clearances from British ports in the period considered in 1929 were: 9614 vessels of 10,026,388 tons, as compared with 9290 vessels of 9,725,946 tons in the first two months of 1928. Of these clearances, 13 per cent went to the Atlantic coast of North America this year, as compared with 12.7 per cent last year.

For the two months ending Feb. 21, 1929, exports of British coal were 8,362,661 tons, as against 7,912,331 tons in the corresponding period of 1928 and 8,265,735 tons in 1927. Coal shipped for the use of steamers engaged in foreign trade totaled 2,605,125 tons in the first two months of this year, as against 2,671,456 tons for 1928 and 2,573,246 tons for 1927. The total value of exports of British goods, exclusive of bullion and specie, for the first two months of 1929 was £142,656,160 ($690,000,000), as compared with £138,950,555 ($672,000,000) in the corresponding period of 1928 and £129,027,407 ($628,000,000) for 1927. As compared with 1928 there was an increase of £544,899 ($2,630,000) in the value of the exports of cotton yarns and manufactures, an increase of £1,416,261 ($6,815,000) for vehicles, including ships, locomotives and aircraft, and an increase of £1,576,404 ($7,600,000) for iron and steel and their manufactures.

Date for opening of bids for the construction of two of the 15 light cruisers authorized by congress has been postponed from May 25 to June 5. Estimates invited from navy yards for the construction of the three other light cruisers to be laid down the first year of the three-year program also will be returnable on June 5.

Dollar Line New Vessels

(*Continued from Page* 19)

Pacific vessels. They will, however, be larger, the length on the 32 foot water line being 630 feet instead of 607 feet and the length overall 653 feet instead of 613 feet. The beam will be one foot greater, 81 feet. The displacement at 32 foot draft will be about 31,000 tons and the deadweight 15,000, tons.

Speed of the Dollar line vessels will be about 21 knots, the maximum shaft horsepower being approximately 26,500. Steam pressure and superheat will be about the same as the VIRGINIA, but there will be twelve boilers instead of eight. Oil fuel will be used.

Accommodations will be provided for about 330 first class and 140 tourist class passengers, and provision will also be made for between 700 and 800 Oriental steerage passengers. The officers and crew will number about 300. Both general and refrigerated cargo will be carried.

The vessels will be built on the traverse framing system with complete innerbottom and numerous watertight bulkheads. They will be constructed under special survey of the American Bureau of Shipping to class *A-1(E) and will also conform to the requirements of the United States steamboat inspection service and the United States public health service, and the subdivisions of the vessels will be such as to fully comply with the British board of trade 1928 regulations.

Finish of first class public spaces will be quite elaborate and the joiner work of a high class. The first class dining saloon with a seating capacity of 250 is located on the upper deck amidship. On the promenade deck is the library and writing room, commodius social hall, smoking room, veranda, fountain room and swimming pool.

Subsequent to all the above, on April 15, it was reported that the Dollar Steamship line had decided to go ahead with the entire program of six vessels of the type described; and that a contract for an additional vessel was to be awarded to the Newport News Shipbuilding & Dry Dock Co. Contract for the remaining three vessels, the report stated, was to be awarded to the New York Shipbuilding Co. Camden, N. J. The cost for each vessel is said to be $7,000,000. Though nothing definite has been stated in this article as to the exact type of power, the choice however lying between geared turbines and turbine electric, the idea is prevalent that it is to be the latter.



How the New York Central Railroad and the Munson Steamship Line Economize in Handling Merchandise

The Great Saving Made Possible by The Stuebing Cowan System

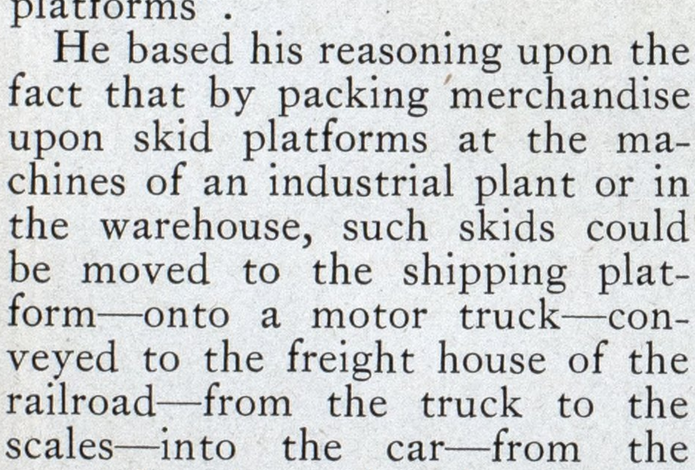
By J. R. Harlan

Several years ago one of the great Material Handling Specialists or Students in this country, W. C. Stuebing, predicted that "America would soon be shipping on skid platforms".

He based his reasoning upon the fact that by packing merchandise upon skid platforms at the machines of an industrial plant or in the warehouse, such skids could be moved to the shipping platform—onto a motor truck—conveyed to the freight house of the railroad—from the truck to the scales—into the car—from the car, when it reached its destination—to the lighter and from the lighter up into the hold of the outgoing vessel.

And all without the rehandling of the merchandise piece by piece.

For years the Stuebing system of handling raw, semi-finished and finished material in industrial plants has been in vogue and found to be the most economical means.



Then some of the more aggressive manufacturers, finding this so profitable, extended it to deliveries where they shipped by truck—the empty skids being brought back on the return of the truck.

So profitable was this that they next devised, with the help of Mr. Stuebing, a cheap skid the cost of which did not exceed the cost of their regular shipping crates or boxes.

They then began to work with their common carriers to equip themselves with the necessary Stuebing Cowan lift trucks in order to be in a position to handle their skids advantageously.

This has grown so popular that today the New York Central Lines and the Munson Line are employing skids, and hand and electric lift trucks in keeping with their aggressive policy of keeping a step ahead of their competitors during these days when prompt deliveries are so essential.

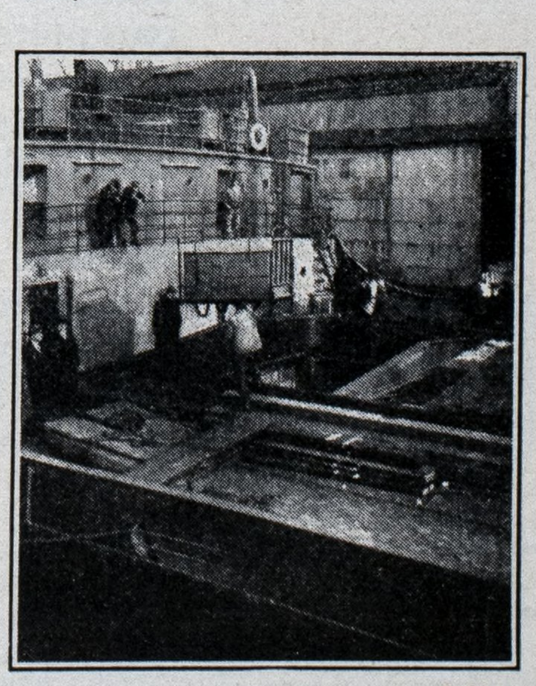
In handling material in this manner it soon developed that the old method of handling every piece of a shipment, or the clumsy lugging and human straining with crates and boxes, was slow, crude and expensive.

The new system speeds up loading and unloading, eliminates breakage and misplacement, and adds uniformity to the work.

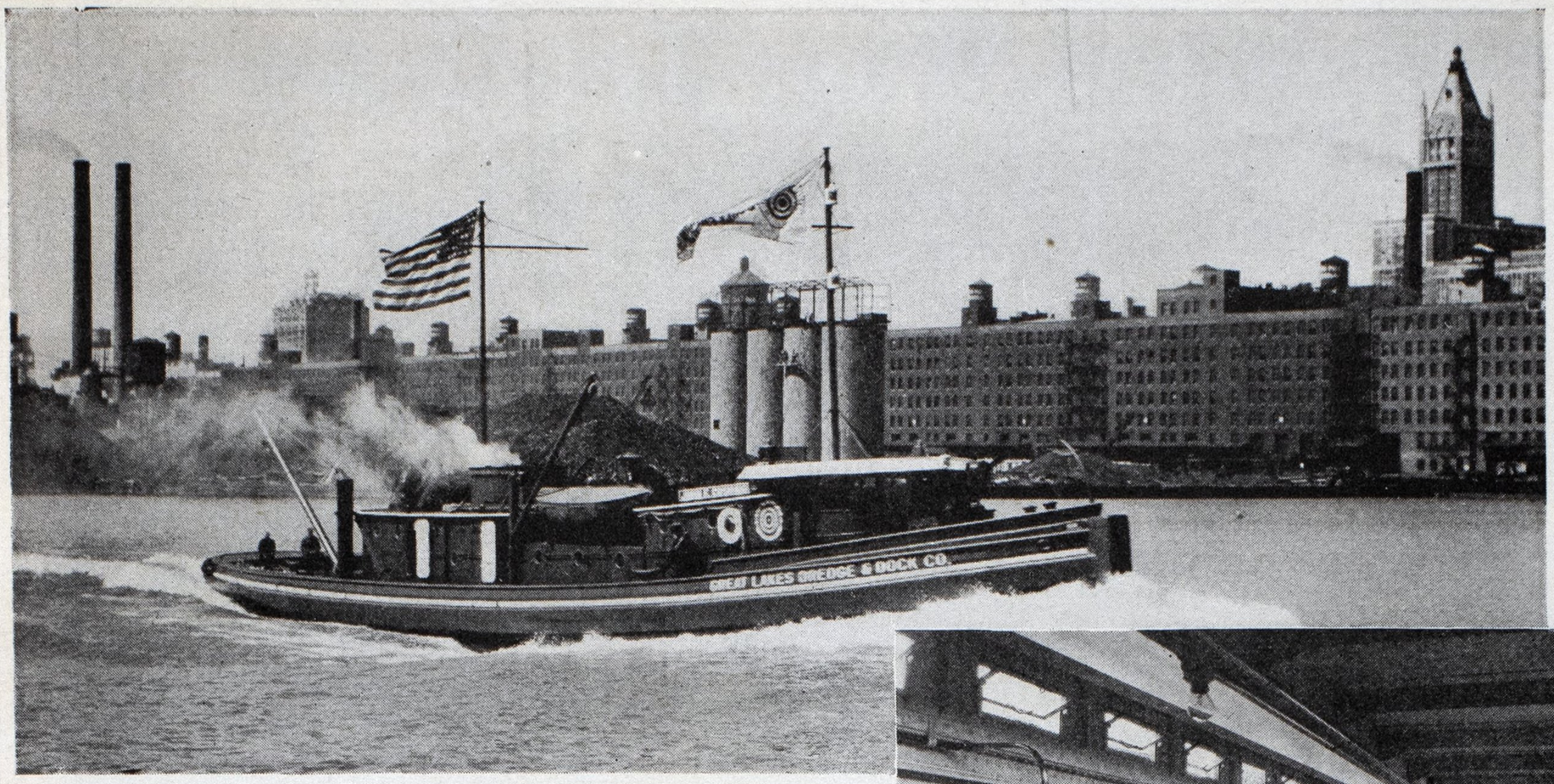
The illustrations show the ease with which the skids are handled and how they are stored in the hold. The hand truck shown is the Stuebing Cowan.

This system is extending to all branches of shipping.

Those who are interested in the subject of "Cheaper, Safer and Better Shipping" can write to Leeds, Tozzer & Co., Inc., 75 West Street, New York City, New York, who will gladly give them all the data they wish.



Advt.

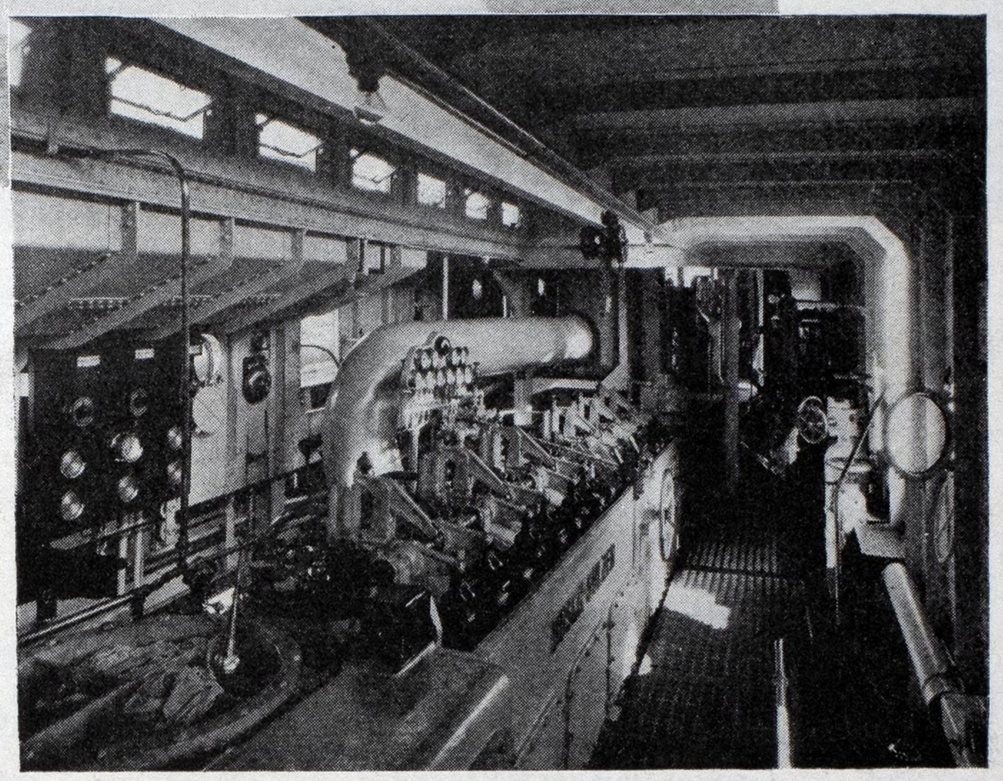


Owned by

Great Lakes Dredge & Dock Co.

1,000 S.H.P. — SINGLE SCREW

165 R.P.M. Busch-Sulzer Diesel Reversing Engine



Engine Room
Tug — John F. Cushing

POWERFUL DIESEL TUG

Only 60 gals. Fuel per Hour — Full Load

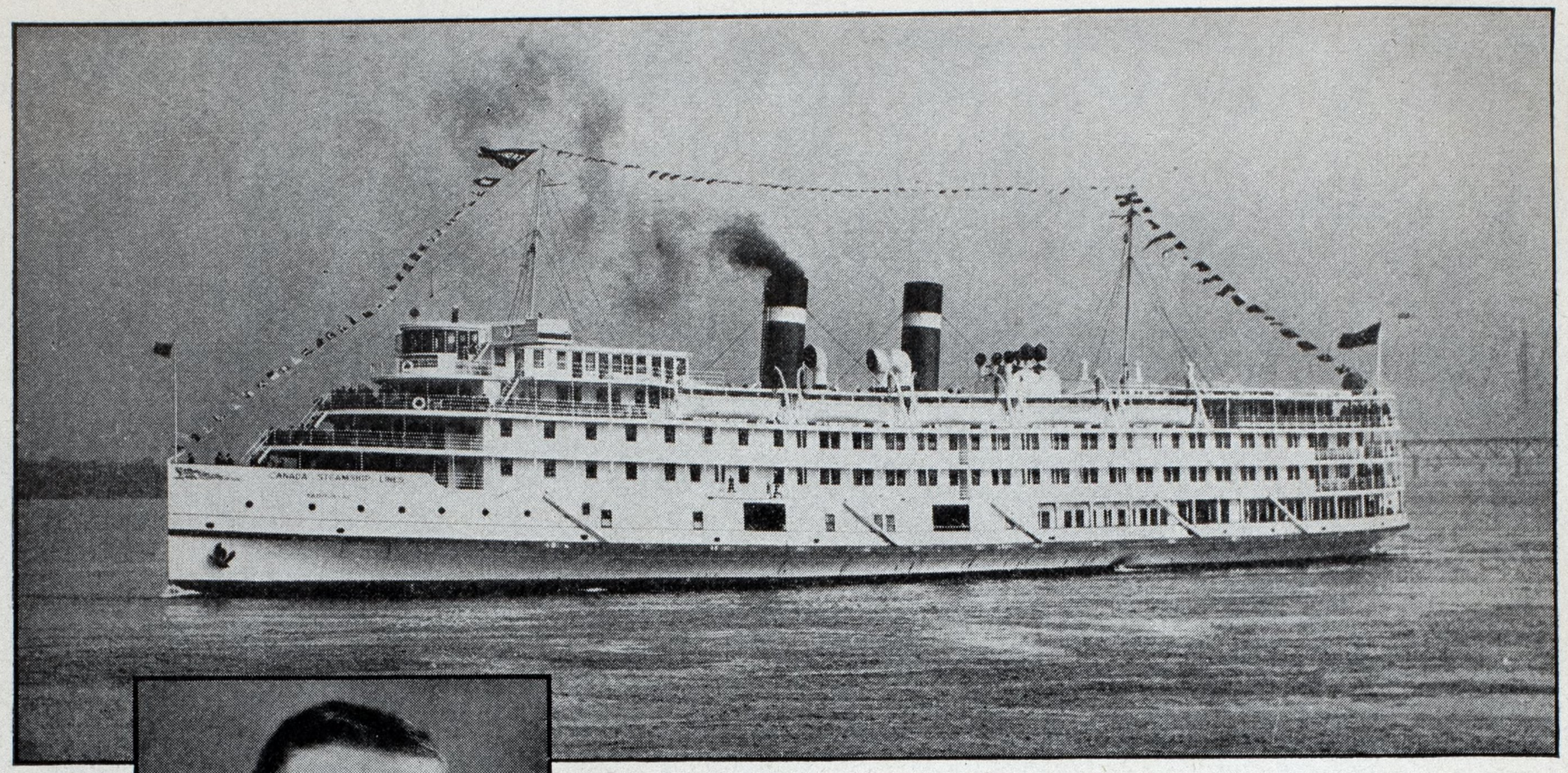
BUSCH-SULZER

BUSCH-SULZER BROS. — DIESEL ENGINE CO.

ST. LOUIS

Two Rector St.
New York

Rialto Bldg.
San Francisco



S. S. *Tadoussac*, a recent addition to the passenger fleet of the Canada Steamship Lines.



Hamilton McClymont,
General Superintendent of
the Canada Steamship Lines.

From Duluth *to* Chicoutimi

Gargoyle Marine Oils lubricate a great fleet of passenger and freight vessels operated by Canada Steamship Lines.

The Canada Steamship Lines operates a fleet of 108 modern, well-equipped passenger and freight vessels on the greatest inland waterway in the world. 22 commodious passenger steamers ply the Lakes from Detroit to Duluth, and offer luxurious transportation from Niagara to the Gulf of St. Lawrence and up the famous Saguenay River to picturesque Chicoutimi.

Mr. Hamilton McClymont, General Superintendent of the Canada Steamship Lines, is responsible for the efficient and economical operation of this great inland fleet. Like other experienced operators all over the world he relies on Gargoyle Marine Oils for correct lubrication of all marine machinery.

Actual results demonstrated through years of use prove that these high-quality lubricants increase horsepower by reducing friction to a minimum; that they are excellent insurance against untimely breakdowns and costly repairs; and that they lengthen the life of propelling machinery.

In more than 300 of the world's leading ports Gargoyle Marine Oils are easily available. The Vacuum Oil Company representative in any of these ports will be glad to help in solving your lubrication problems.

NOTE: Our authoritative treatises, "Steamships with Reciprocating Engines" and "Turbine Propelled Steamships" may be obtained, without obligation, by writing to Marine Sales Department, Vacuum Oil Company, 61 Broadway, New York City.

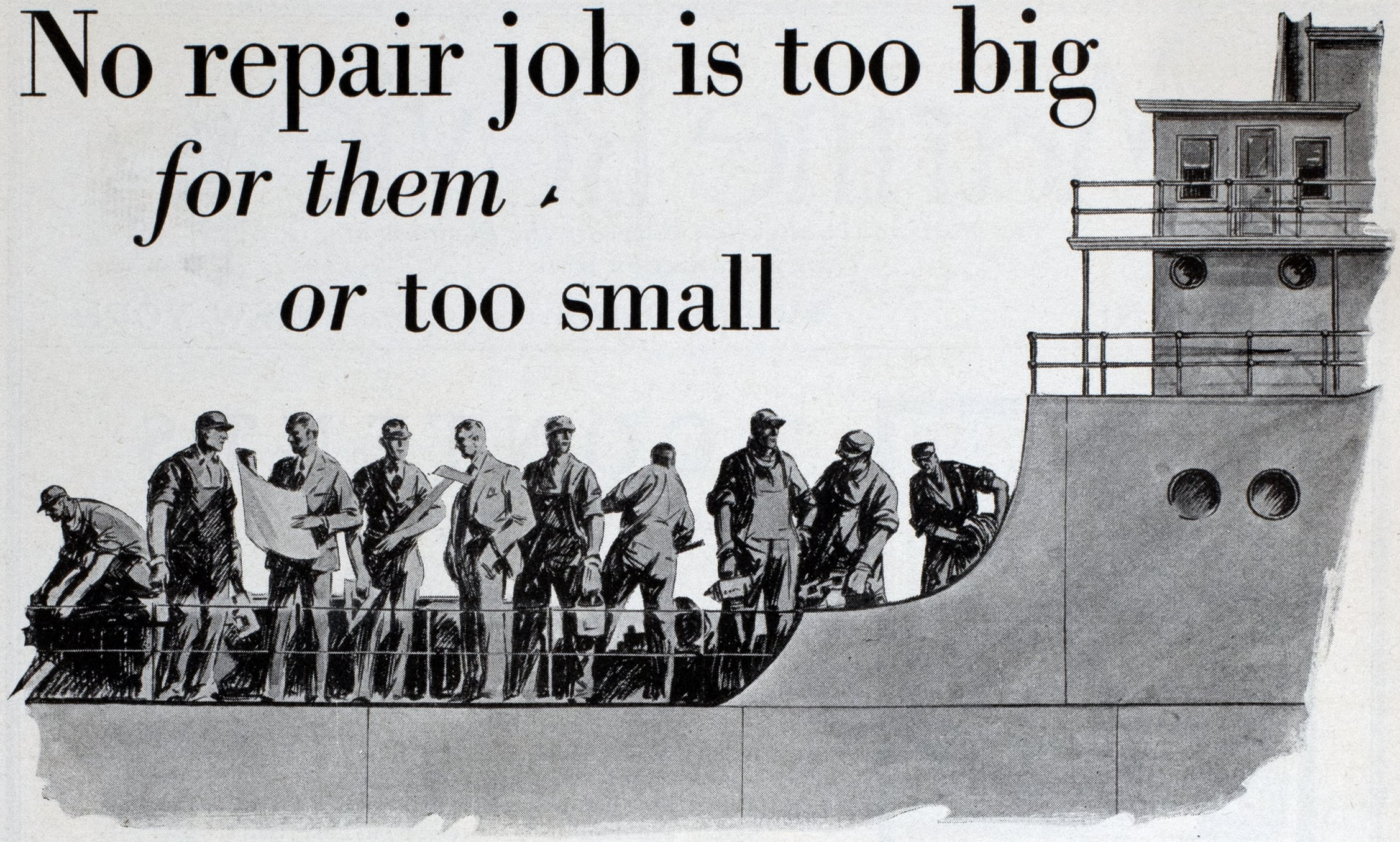
GARGOYLE

Marine Oils

A grade for each type of service

Vacuum Oil Company — *Specialists in the manufacture of high-grade lubricants for every class of machinery Obtainable everywhere in the world* — *New York, U. S. A.*

No repair job is too big *for them* . *or* too small



We maintain these skilled workmen, engineers, architects and draftsmen—hundreds of them—at the strategic points of the Great Lakes so each of your ships may have an extra crew—a repair crew—whenever and wherever the emergency demands. They are on the job all the year, to serve you a few times a year.

We provide them with unlimited repair facilities: large dry docks, completely equipped repair scows, foundries, forges, planers, boring mills, lathes. No repair job is too big for them—or too small.

Ship operators realize that these resources are vital to Lake shipping—that only a completely equipped ship building company can maintain them—and that economical maintenance of this immense equipment and man power calls for a big volume of repair work. That is why operators are turning to the completely equipped ship building companies for all their repair jobs—small as well as big.

The AMERICAN SHIP BUILDING CO.

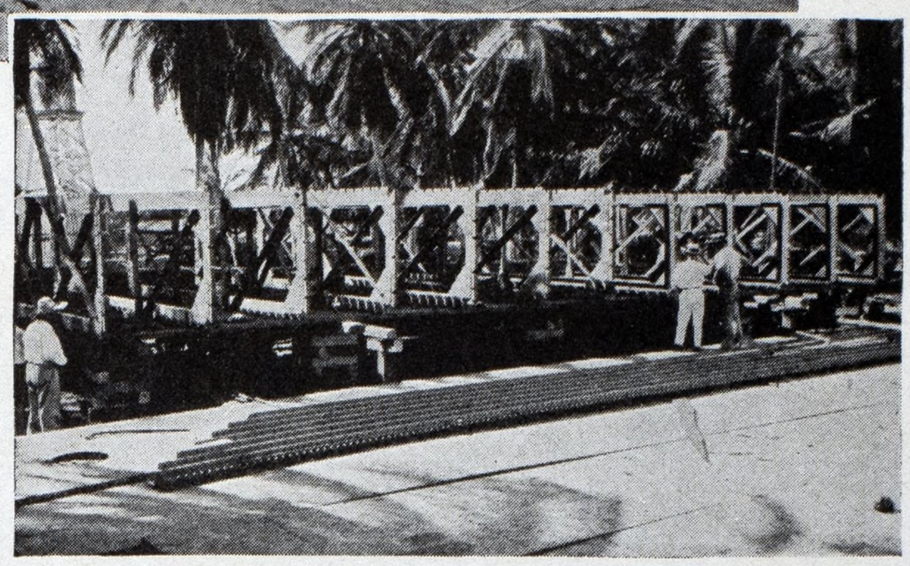
CLEVELAND *American Ship Building Co.* | LORAIN *American Ship Building Co.* | BUFFALO *Buffalo Dry Dock Company* | SOUTH CHICAGO *Chicago Ship Building Co.* | SUPERIOR *Superior Shipbuilding Co.*

RAYMOND REPEAT ORDERS *Tell the Story*

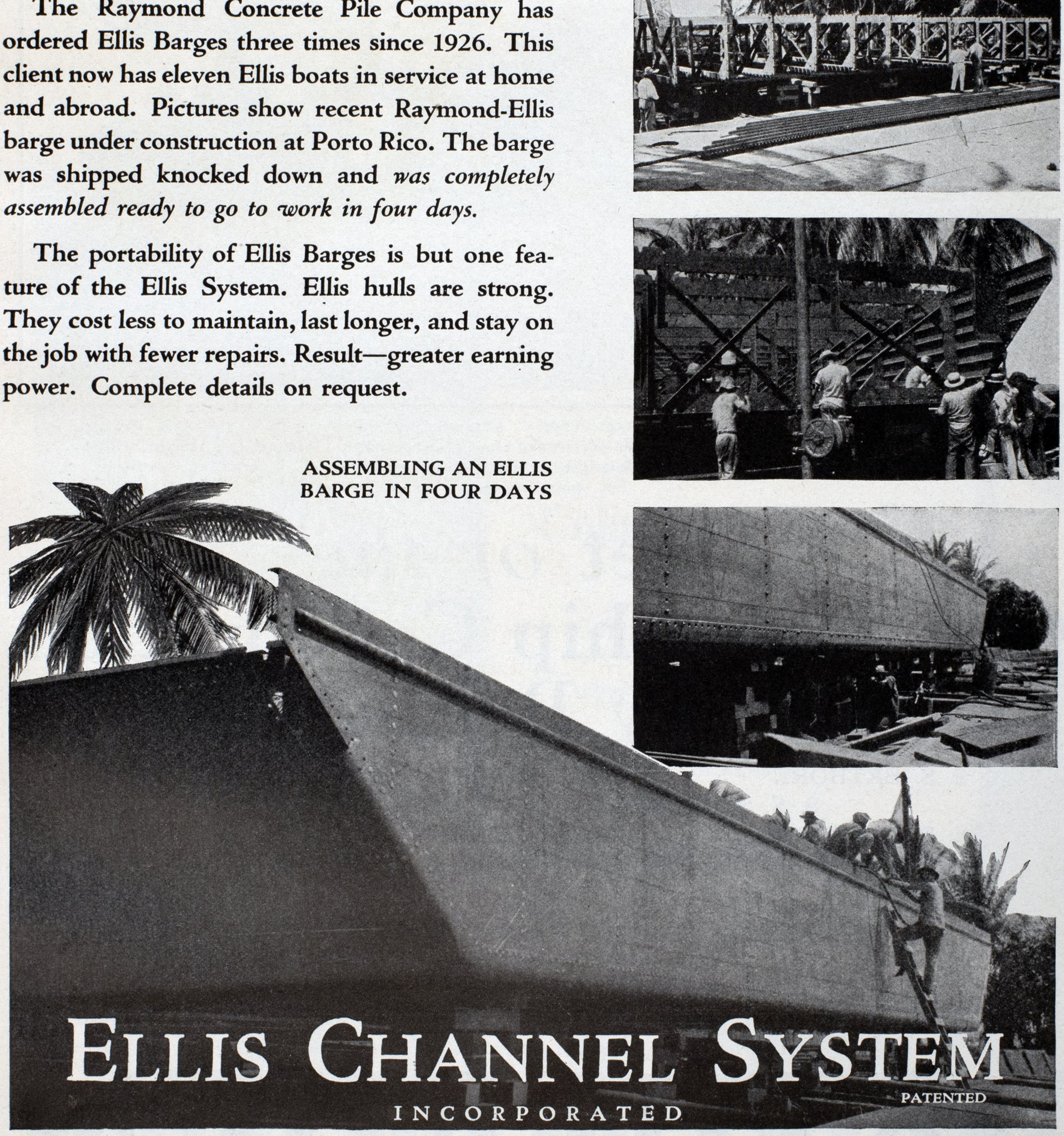
The Raymond Concrete Pile Company has ordered Ellis Barges three times since 1926. This client now has eleven Ellis boats in service at home and abroad. Pictures show recent Raymond-Ellis barge under construction at Porto Rico. The barge was shipped knocked down and *was completely assembled ready to go to work in four days.*

The portability of Ellis Barges is but one feature of the Ellis System. Ellis hulls are strong. They cost less to maintain, last longer, and stay on the job with fewer repairs. Result—greater earning power. Complete details on request.





ASSEMBLING AN ELLIS BARGE IN FOUR DAYS



ELLIS CHANNEL SYSTEM

INCORPORATED

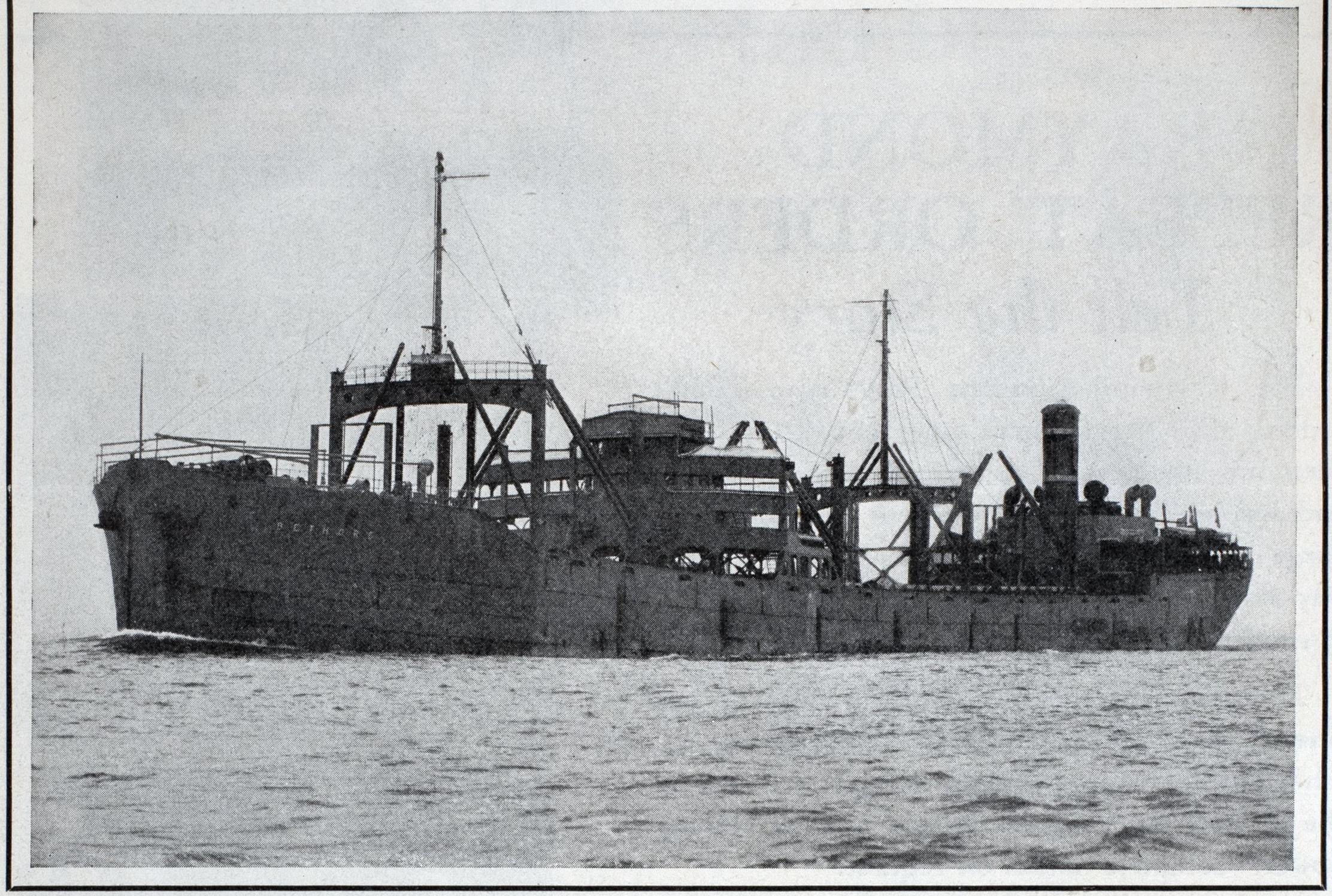
PATENTED

Atlantic Division
ATLANTIC ELLIS CHANNEL SYSTEM, INC.
33 Rector St., New York

Pacific Division
ELLIS CHANNEL SYSTEM, INC.
3200 26th Ave. Southwest, Seattle, Wash.

Great Lakes Division
MANITOWOC SHIP BUILDING CORP., INC.
Manitowoc, Wis.

Central & South American Division
FOX BROS. & CO., INC.
33 Rector St., New York



S. S. Bethore, shown above, is a 21,300-ton vessel. Dimensions: 550 ft. x 72 ft. x 40 ft. Speed: 11 knots. The Bethore, like all the other carriers of the Ore S teamship Corporation, was built and completely equipped by Bethlehem. In addition, Bethlehem furnished the propelling machinery for these vessels.

Fleet *of the* Ore Steamship Corporation Built by Bethlehem

S. S. BETHORE
S. S. LEBORE
S. S. CHILORE
S. S. STEELORE
S. S. MARORE
S. S. SANTORE
S. S. FELTORE
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S. S. MANGORE

BETHLEHEM SHIPBUILDING CORPORATION, LTD.
BETHLEHEM, PA.

General Sales Offices:

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District Offices: Boston, Baltimore and San Pedro

BETHLEHEM



Instantly Recognized

Since I first appeared, I have been distinguished by my red, blue and red yarns which have now become a familiar sight in every harbor. These yarns have a definite significance to those who depend upon towing lines for the success of their business.

They mean that I am Columbian Tow-Ro and represent the latest practical construction in a towing line. Some of my other advantages which will appeal to all users of towing lines are:

I can be easily spliced.
I retain my form in sea and out.
I am thoroughly waterproofed.
I have flexibility without distortion.
I bear every strain equally on all fibres.
I am Guaranteed by the Columbian *Tape-Marker*.

Because of my advanced type of construction, I will give longer and more dependable service than any towing line you have ever used. Ask for me. You will readily recognize me by my red, blue and red yarns, I am

Columbian Tow-Ro

Columbian Rope Company
332-90 Genesee Street
Auburn, "*The Cordage City*," N. Y.

BRANCHES:
New York Chicago Boston New Orleans
Philadelphia

COLUMBIAN TOW-RO

Patent Applied For

SUN SHIPBUILDING & DRY DOCK COMPANY

Builders of

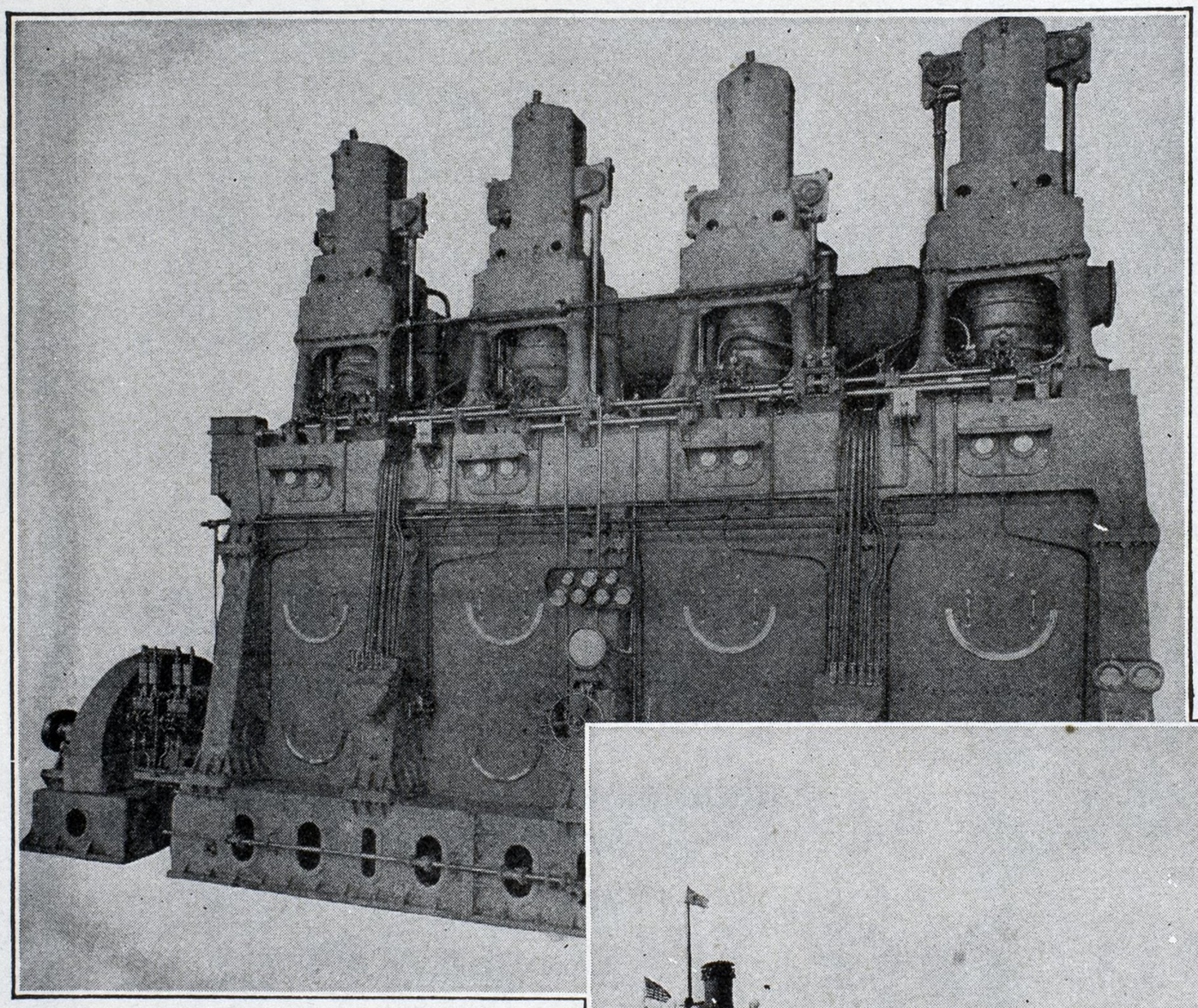


SUN-DOXFORD DIESEL ENGINES



The Engines that Power

"HENRY FORD II" *and* "BENSON FORD"



3000 S. H. P. Sun-Doxford Diesel Engines power the two motorships, "Henry Ford II" and "Benson Ford".



M. S. "Henry Ford II"

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KILL FIRE WHILE IT IS YOUNG



FOAMITE Protection — for Engine and Boiler Rooms

For freighters — for tankers — for passenger ships — for any ship afloat — the FOAMITE Generator System provides ideal protection against engine and boiler room fires.

***Firefoam*, smothering fire under an air-tight blanket of foam, is produced by the automatic mixture of a single powder and water (either salt or fresh). The quantity of *Firefoam* is limited only by the supply of powder. *Firefoam* puts the toughest fire out and keeps it out. It is just as effective on fires in blazing oil or inflammable liquid, as it is on fires in any other type of material.**

The FOAMITE Generator is mobile. It can cover fires in the engine and boiler room through fixed piping. With the aid of hose it can cover almost any other point on the ship. With certain protection it combines minimum weight and space requirements, low initial cost and practically no maintenance.

Ask for a demonstration of the FOAMITE Foam Generator. American-La France and Foamite Corporation, Engineers and Manufacturers, Dept. J 15 Elmira, N.Y.

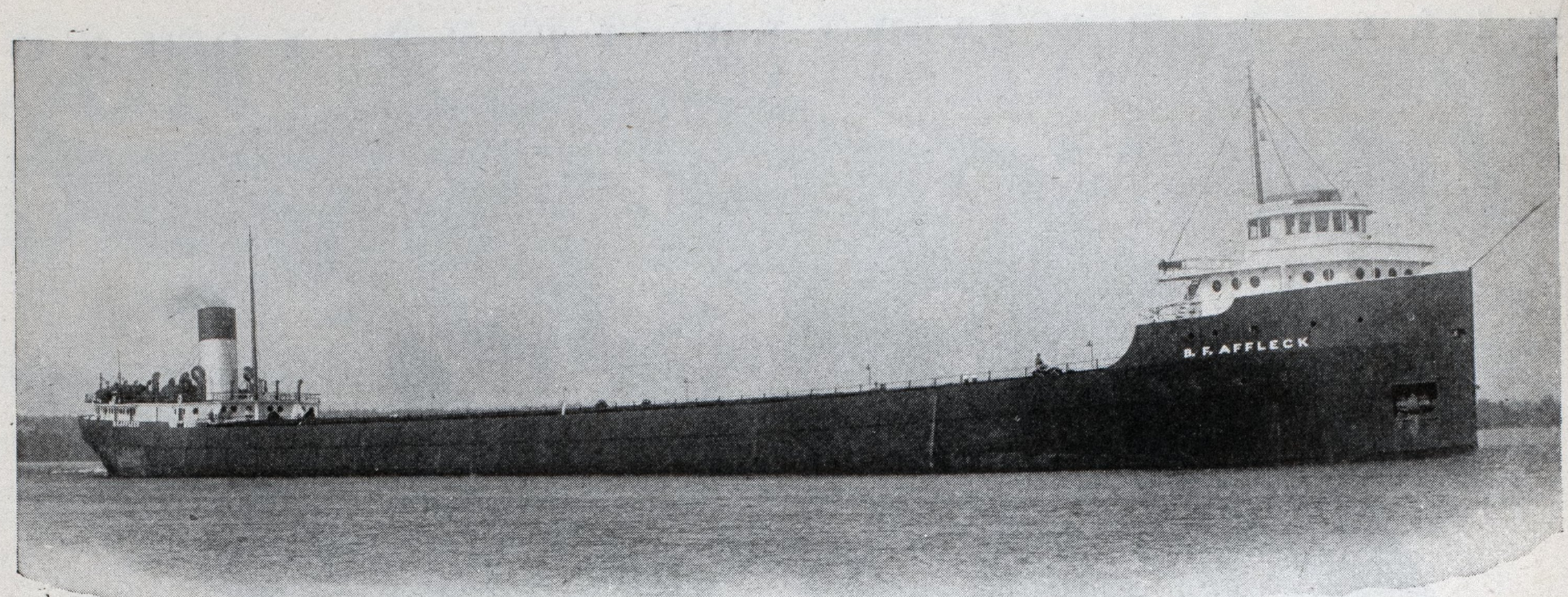


"Needless Ruin" describes the FOAMITE Generator System and illustrates typical layouts. It also covers ALFITE protection for cargo holds. Write for your copy.

AMERICAN-LA FRANCE AND FOAMITE PROTECTION

A Complete Engineering Service

For Extinguishing Fires



B. F. AFFLECK

Finest Type of Great Lakes Cargo Carrier

S.S. B. F. Affleck owned and operated by the Pittsburgh Steamship Company, is a single deck bulk cargo vessel of the standard type built for the iron ore, coal and stone trade of the Great Lakes. Her molded dimensions are: Length overall, 604 feet, length between perpendiculars, 580 feet; width 60 feet and depth 32 feet. Capacity 12,000 tons.

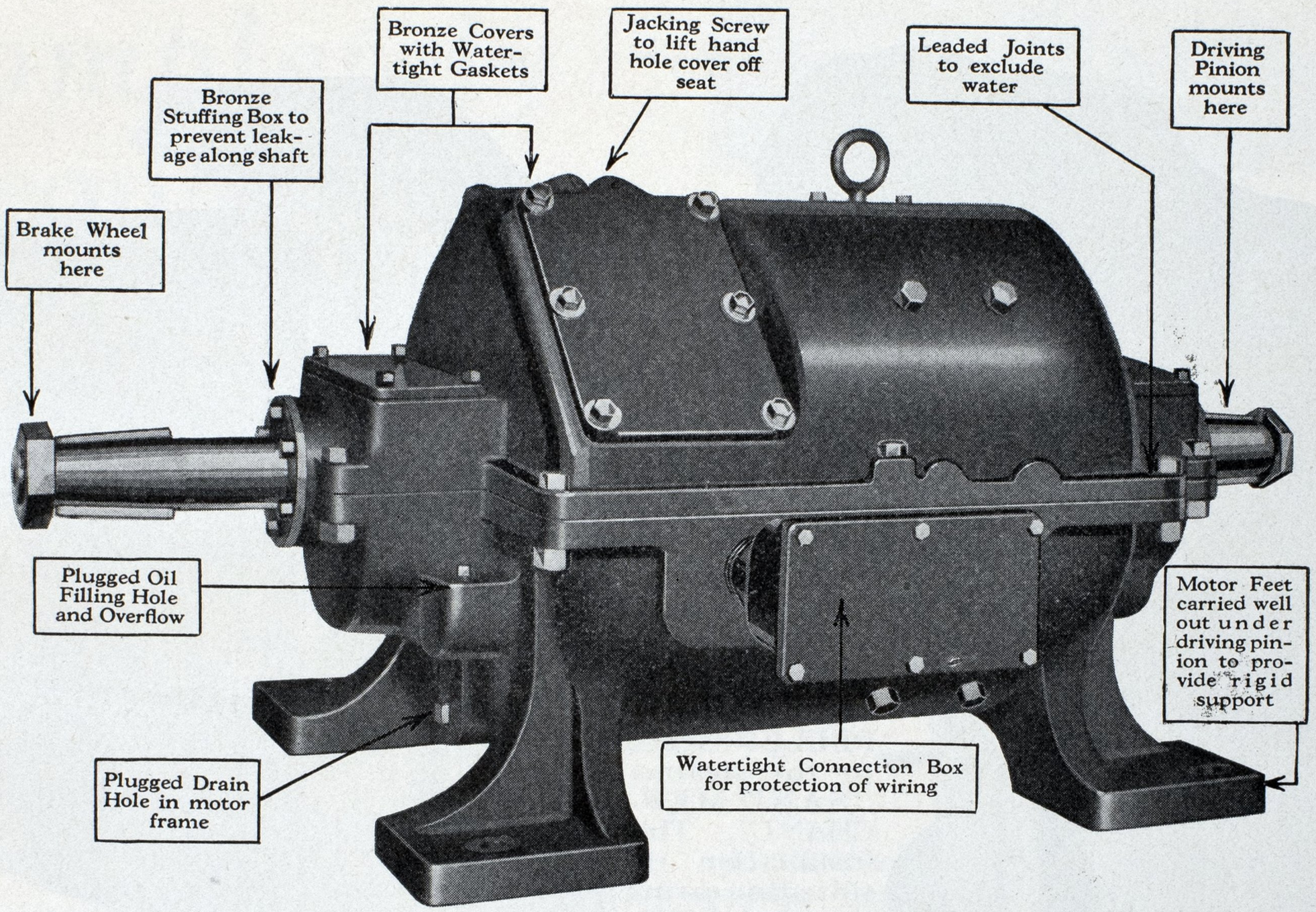
A diversified experience, covering the construction of all types of ships, fully qualifies us to meet *your* requirements thoroughly and with despatch.

Some Other Ships We Have Built

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Car Ferry, WABASH
Car Ferry, CHIEF WAWATAM
Car Ferry, ST. MARIE
Car Ferry, ANN ARBOR No. 5
Twin Screw Excursion Steamer, THOUSAND ISLANDER
Self Unloading, JOHN W. BOARDMAN

Toledo
Shipbuilding Company, Inc.
Toledo, Ohio

DIEHL



Heavy Duty Watertight Deck Motor

Marine Insulation **Non-Corrodible Fittings**

designed and built in accordance with
the requirements of the

U. S. Shipping Board

by the

Diehl Manufacturing Company

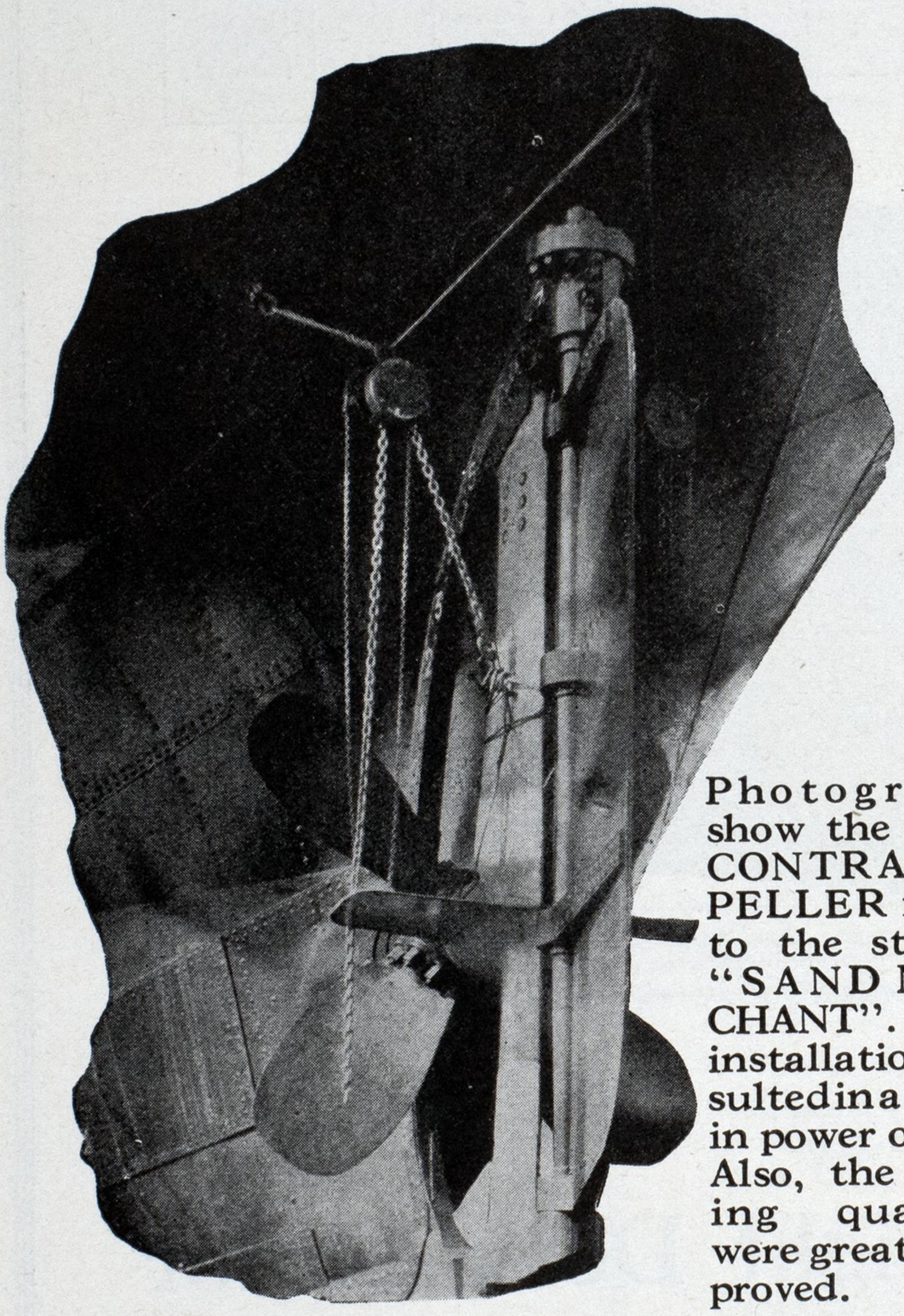
Electrical Division of **The Singer Manufacturing Company**

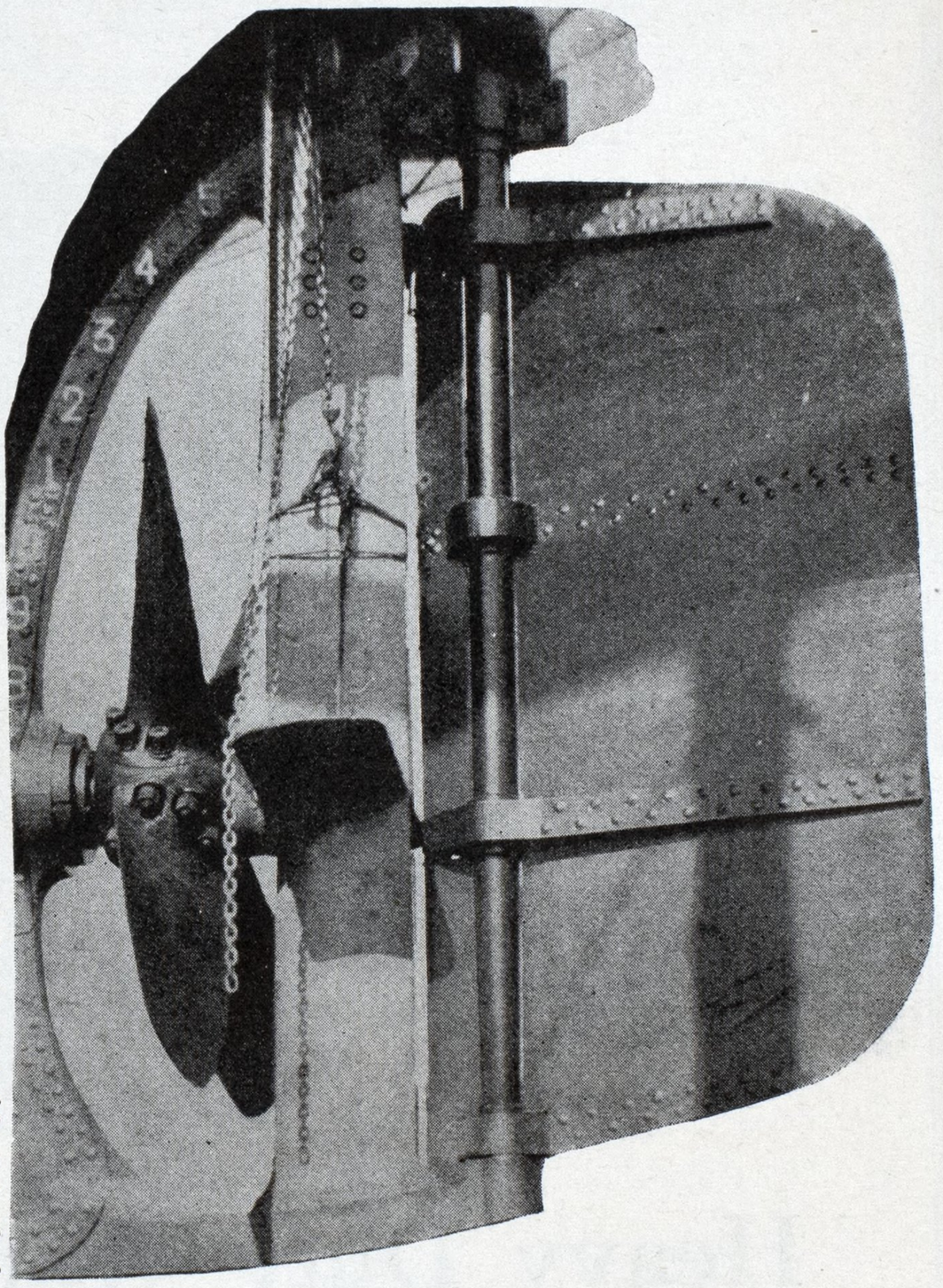
Elizabethport, N. J.

Collingwood Shipyards Limited

Collingwood, Ontario

Sole Licencees for Canada -- for Star Contrapropellers and Rudders





Photographs show the STAR CONTRAPROPELLER fitted to the steamer "SAND MERCHANT". This installation resulted in a saving in power of 12%. Also, the steering qualities were greatly improved.

STAR CONTRAPROPELLERS have been fitted to 425 vessels representing 2,577,181 tons with an aggregate of 1,035,493 I. H. P.

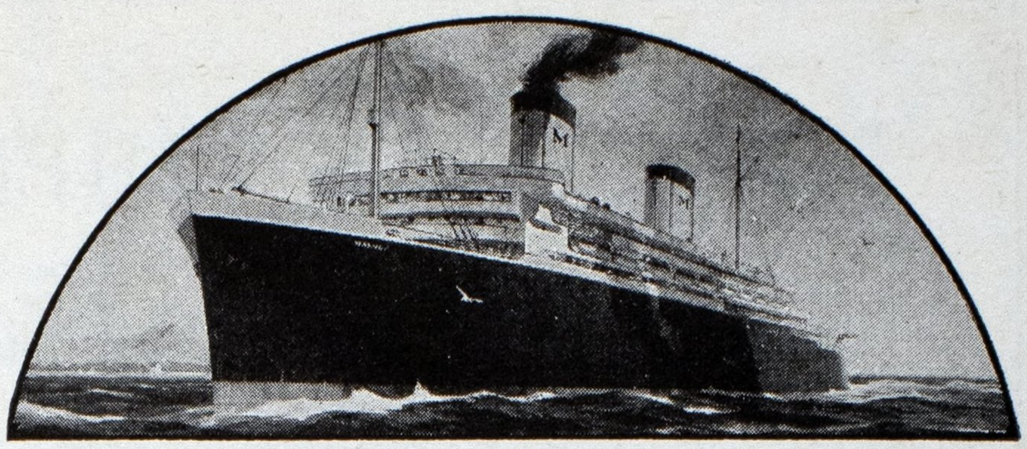
The main advantages are:

Saving in power of from 10% to 15% for the same speed.
Increase in speed of from 5% to 10% for the same power.
Improved steering, which is important in handling ships in canals and narrow waterways.

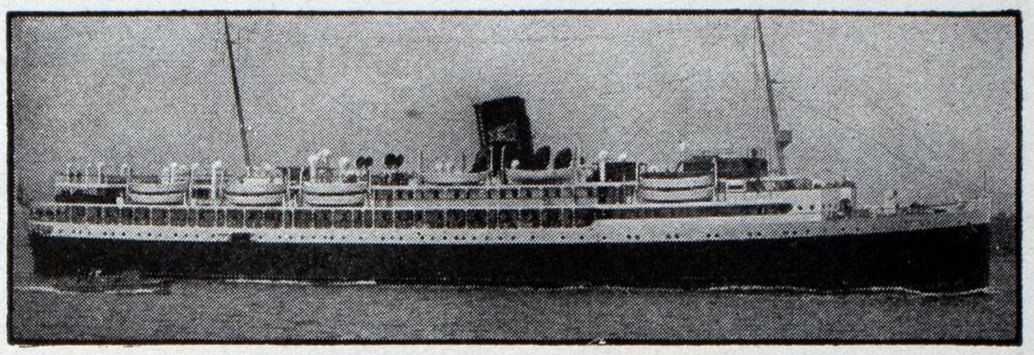
Reduction in vibrations.
The Contrapropeller is applicable to all types of vessels.

PLANS AND ESTIMATES WILL BE FURNISHED ON APPLICATION

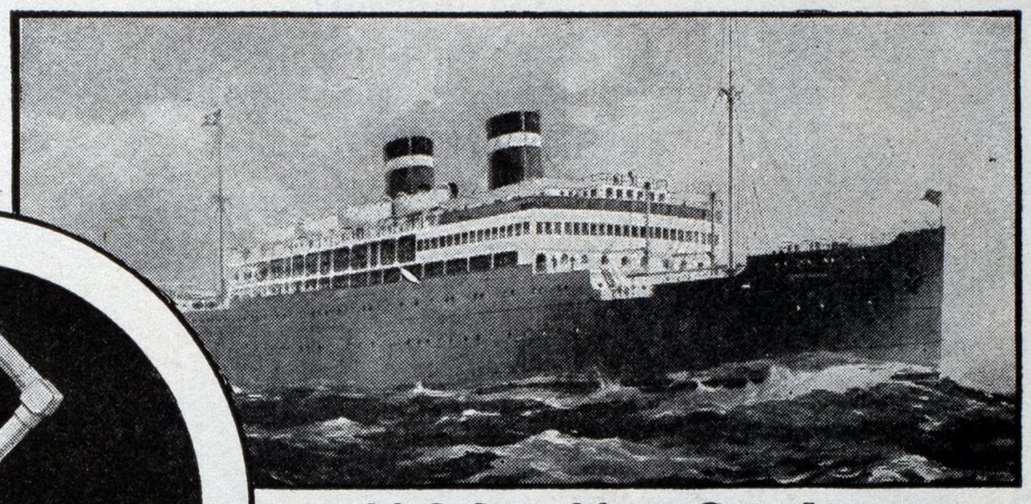
These distinctive ships are *completely* equipped by RCA



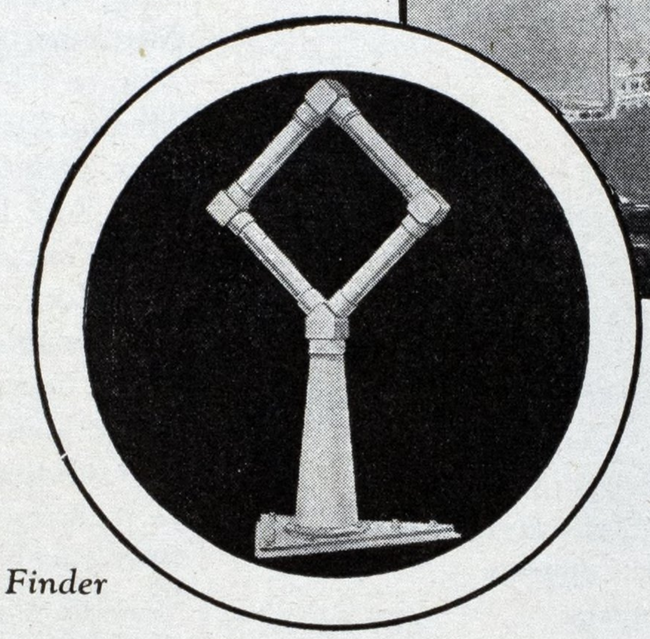
S. S. Malolo, Matson Navigation Company



S. S. Yarmouth, Eastern S. S. Lines



M. S. Santa Maria, Grace Line



RCA Radio Direction Finder

The Radiomarine Corporation of America now furnishes radio service to more than 1300 American vessels. More than 800 vessels of 120 steamship companies now carry either receivers, transmitters, or radio direction finders furnished by RCA.

Complete RCA Service includes:

1. *Equipment*—transmitting and receiving, vacuum tube type; radio direction finder.
2. *Service on Equipment*—regular inspections at any of sixteen ports; maintenance of conveniently located stocks of spare parts for repairs and renewals.
3. *Operators*—detailing of experienced operator personnel to the ship.
4. *Coastal Stations*—maintenance of thirteen coastal stations on the Atlantic, Pacific, Gulf and Lakes, for prompt, efficient handling of radio traffic.
5. *Accounting*—checking and settling of accounts.
6. *Miscellaneous*—attention to numerous miscellaneous details.

Radiomarine storerooms and service stations in charge of radio men of long experience are located at the following ports:

Boston
New York
Philadelphia
Baltimore
Norfolk
New Orleans
Port Arthur
Galveston
Los Angeles
San Francisco
Seattle
Honolulu
Cleveland
Chicago
Buffalo
Duluth

Radiomarine coastal stations are located at the following points:

Chatham, Mass.
New London, Conn.
East Moriches, L. I.
New York, N. Y.
Buffalo, N. Y.
Tuckerton, N. J.
Baltimore, Md.
(city station)
Galveston, Tex.
Los Angeles, Cal.
San Francisco, Cal.
Chicago, Ill.
Cleveland, Ohio
Duluth, Minn.

RADIOMARINE CORPORATION
OF AMERICA
66 BROAD STREET
NEW YORK

NEW YORK SHIPBUILDING COMPANY

has constructed vessels for the following Governments and Corporations

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Navy Department
Department of Commerce:
  Bureau of Lighthouses
Panama Canal Commission
Treasury Department:
  The Coast Guard
United States Shipping Board:
  Emergency Fleet Corporation
War Department

FOREIGN GOVERNMENTS

Republic of Argentina
Kingdom of Greece
Empire of Japan

CITY OF NEW YORK

Department of Docks and Ferries
Fire Department

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American Dredging Co.
American-Hawaiian Steamship Company
Atlantic & Caribbean Steam Navigation Co.
Atlantic, Gulf & Pacific Company
Atlantic Transport Company
Baltimore & Ohio Railroad
Brooklyn Eastern District Terminal Company
Carpenter O'Brien Company
Chesapeake & Ohio Railway Co.
Coastwise Transportation Company
Consolidated Coal Company
Darrow & Mann Company
Delaware, Lackawanna & Western R. R. Co.
East Coast Transportation Company
Electric Ferries, Incorporated

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Empire Engineering Corporation
Great Lakes Dredge & Dock Co.
J. M. Guffey Petroleum Company
Gulf Refining Company
W. R. Grace & Company
Hudson Navigation Company
Hudson River Day Line
International Cement Corporation
Lehigh Valley Railroad Company
Long Island Railroad Company
Merchants & Miners Transportation Co.
Morgan's Louisiana & Texas R. R. & S. S. Co.
Munson Steamship Company
New York Central Lines
New York Engineering Company
New York, New Haven & Hartford Railroad
New York, Philadelphia & Norfolk R. R.
Old Dominion Steamship Company
Pacific Coast Steamship Company
Pacific Mail Steamship Company
Pennsylvania System
R. A. Perry Company
Petroleum Transportation Co.
Pocahontas Navigation Company
Reading Company
Rockland Transportation Co.
Southern Pacific Company
Standard Oil Company of New Jersey
Standard Transportation Company
Texas Oil Company
Tide Water Oil Company
United Dredging Company
United Fruit Steamship Company
Venezuela Gulf Oil Company

It is the rule rather than the exception for ships constructed here to exceed by a liberal margin, the exacting contract requirements of current day marine engineering practice.

Our personnel and facilities are available for the design and construction of craft of all sizes . . . merchant or naval.

NEW YORK SHIPBUILDING COMPANY

Main Office & Works:
Camden, New Jersey

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Balance the Investment
between
Bridge and Engine Room

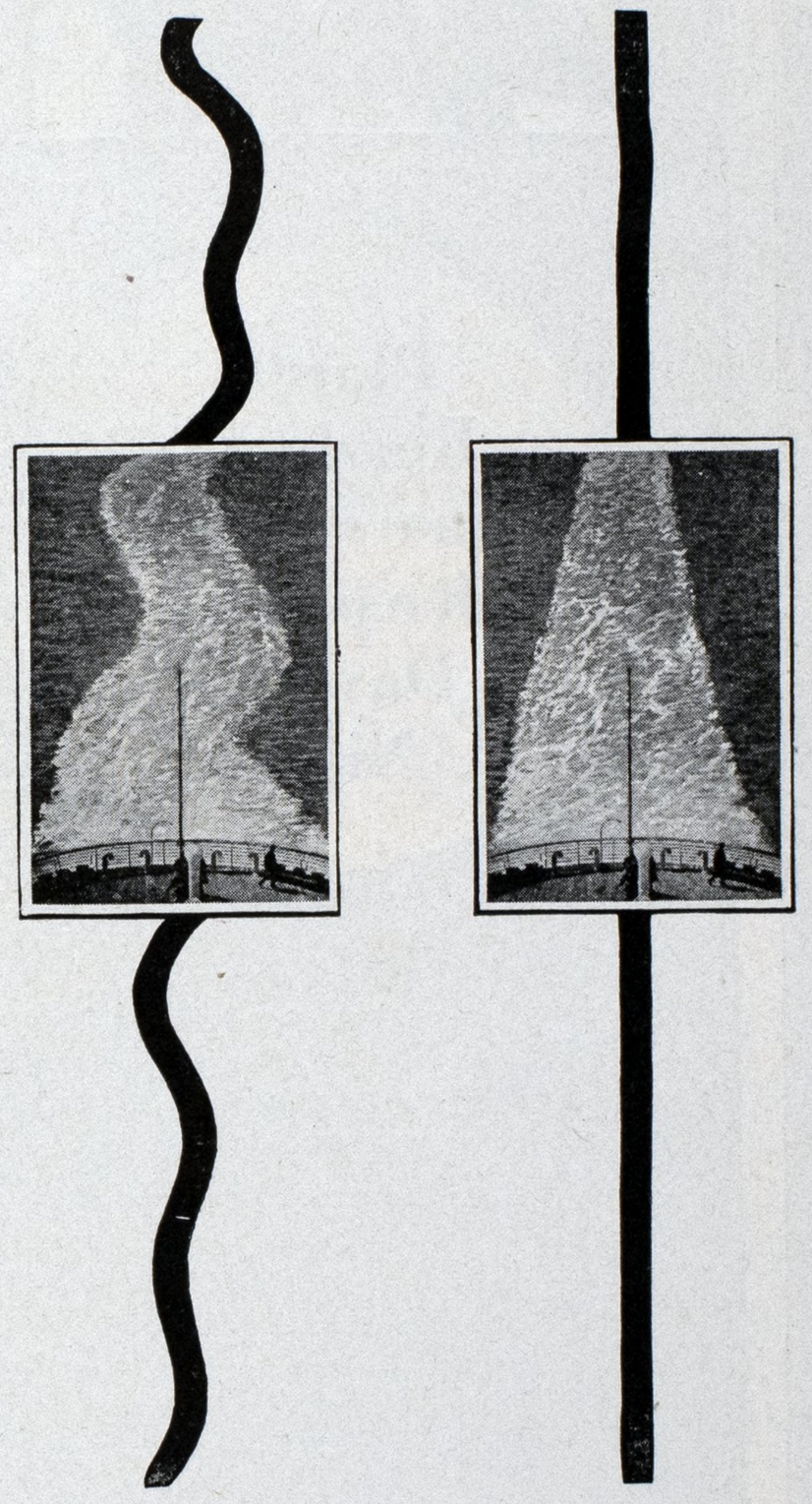
IN the industrial power plant the engineer has jurisdiction over the generation of power, its distribution and use. On board ship this responsibility is necessarily divided. The engineer generates the power and delivers it to the propeller, where he hands it over to the captain.

The economical conversion of this power to miles traversed toward a given destination can be accomplished only by the aid of efficient bridge equipment.

A good seaman will make his destination although his compass may be subject to varying errors from many causes. But under such a handicap he is forced to cancel the result of many years progress in marine engineering.

The only way to insure a full return from the investment in propulsion machinery is to provide the bridge with the most modern equipment — the SPERRY GYRO-COMPASS and GYRO-PILOT.

The economies provided by this equipment have led to its adoption by 120 of the World's leading steamship companies. On the new ship it insures a full return on the investment in modern engine room machinery. On the ship already in service it provides an inexpensive means of raising the over-all economic performance.



Bridge equipment is responsible for the difference between the inefficiency of bad steering and the efficiency of good steering.

SPERRY GYROSCOPE COMPANY, INC.

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CLEVELAND PHILADELPHIA SEATTLE NEW YORK LOS ANGELES SAN FRANCISCO



Plants Ready for Emergency Repairs Day and Night

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FRANK M. SCOTTEN, Mechanical Engineer
227 Military Rd., Dearborn, Mich.....Dearborn 447
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71 Elm St., River Rouge, Mich.....Cedar 4290-J
JOHN GREIG, Docking Foreman
110 Walnut St., River Rouge, Mich.....Cedar 5558-W
FRED ERNST, Supt. Machine Shops
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ROY MCDOWELL, Chief Clerk
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R. PEET, Solicitor
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O. WOERFUL, Plant Supt.
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E. D. MACKENZIE, Yard Supt.
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Shipbuilders and Engineers

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Engine Works Equipped For General Heavy Machine and Foundry Work Detroit, Michigan

Complete Shipbuilding Dry Dock and Repair Facilities River Rouge, Mich., and Ashtabula, Ohio

Newport News Shipbuilding & Dry Dock Company

Shipbuilders and Ship Repairers

Three Large Graving Docks

Steel, Brass and Iron Foundries

Heavy and Light Forgings

Marine Paints
Of Every Description

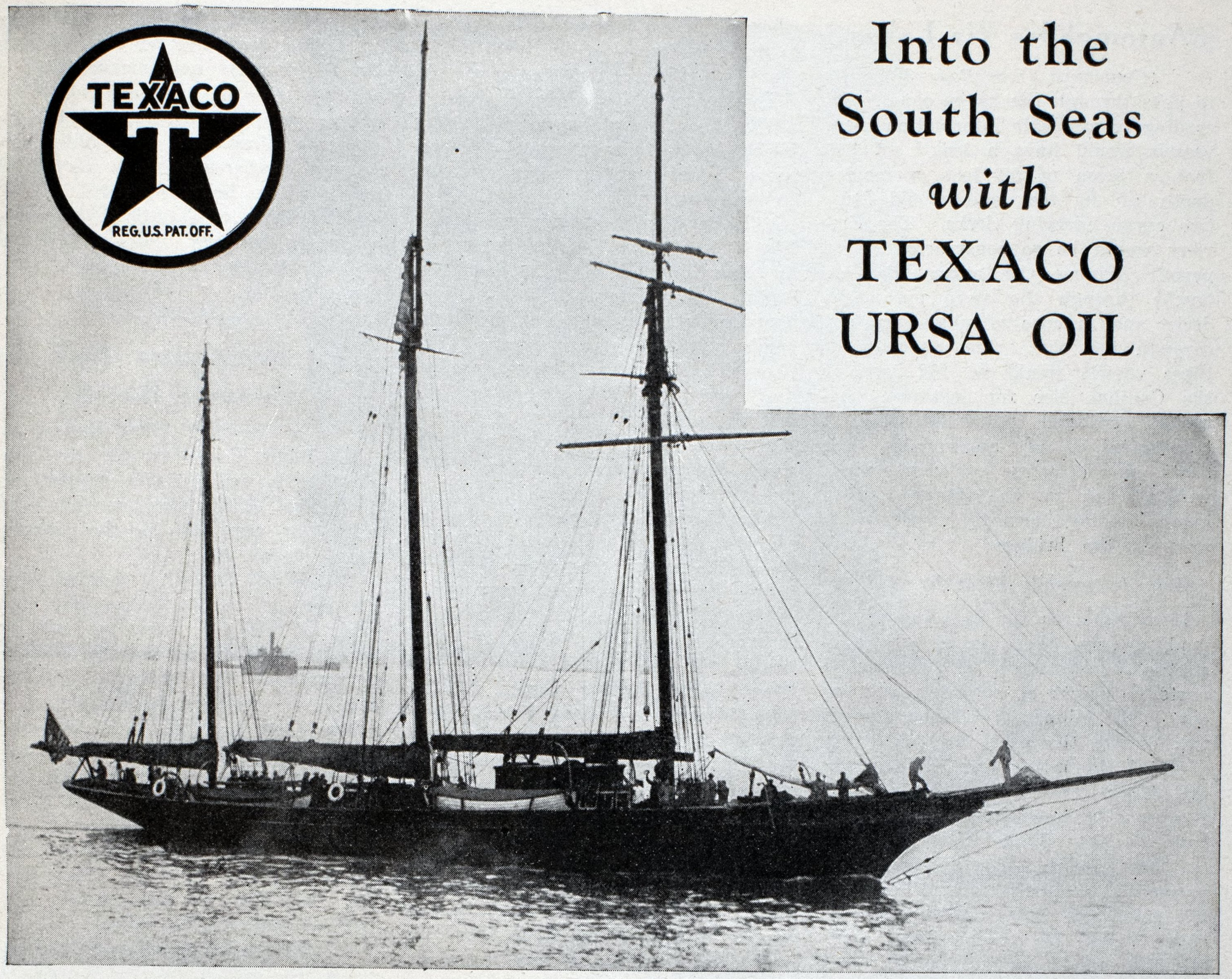
Newport News Composition Anti-Corrosive and Anti-Fouling

Plant Located at

Newport News, Va.

On Hampton Roads

233 Broadway, New York



Into the South Seas *with* TEXACO URSA OIL

The barkantine Mary Pinchot is off for an eight months trip to the South Seas with Texaco Ursa Oil speeding the way.

The ship is equipped with an eight-cylinder, four-cycle New-type WINTON Diesel Marine Engine of 300 H. P. at 700 R. P. M. Texaco Ursa Oil Lubricates the cylinders, bearings and air compressor. Texaco Ursa Oil Heavy lubricates the FALK reduction gears and Texaco Ursa Oil lubricates the WINTON electric generator set.

Texaco Ursa Oils were chosen to lubricate the Mary Pinchot over all other brands available. This is a distinct tribute to their quality and uniformity. Texaco Ursa Oils—clean, clear golden—are made especially for Diesel lubrication. Whatever the make or type of Diesel engine—call The Texas Company first for lubrication! Complete stock at principal ports throughout the World.

TEXACO LUBRICANTS

The Texas Company

17 Battery Place, New York City

Marine Sales Division

THERE IS A TEXACO LUBRICANT FOR EVERY PURPOSE



"Bound to get there"

REG. U. S. PAT. OFF.



Boxes are only one of the many products which can be shipped on skids to advantage—resulting in savings in time and handling costs beginning in the plant of the manufacturer and extending all the way down the line to the journey's end.

ACME NAILLESS BAND

Makes easy work of securely fastening all kinds of loads to skids or platforms for shipment.

These specially tempered non-stretch steel bands, having a tensile strength of 85,000 pounds per square inch, are tensioned and sealed with the Acme Strapping Tools (Stretcher and Sealer) in less than one minute. To remove the load one has simply to snip the bands.

The Acme Method permits the use of the most simple and inexpensive types of skids—either the nailed up wooden kind designed for one trip only, or the pressed steel platforms, which may be nested and returned in strapped bundles.

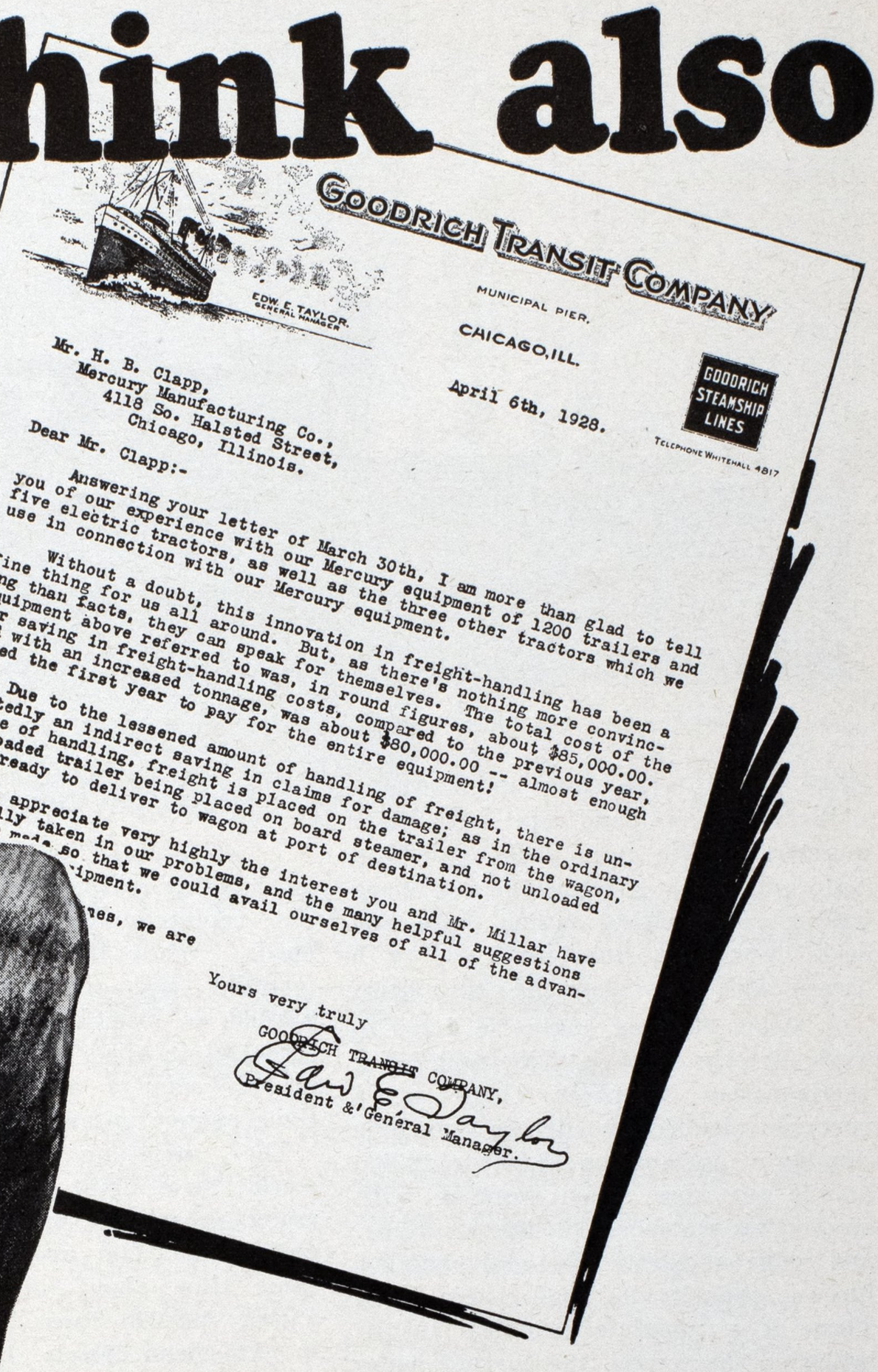
The experience of Acme representatives, gained through considerable experiment with skid handling of a variety of products, is yours for the asking.

ACME STEEL COMPANY

General Offices: 2840 Archer Avenue, Chicago, Ill.

think also





GOODRICH TRANSIT COMPANY

MUNICIPAL PIER.
CHICAGO, ILL.

EDW. F. TAYLOR.
GENERAL MANAGER.

GOODRICH STEAMSHIP LINES

TELEPHONE WHITEHALL 4817

April 6th, 1928.

Mr. H. B. Clapp,
Mercury Manufacturing Co.,
4118 So. Halsted Street,
Chicago, Illinois.

Dear Mr. Clapp:-

Answering your letter of March 30th, I am more than glad to tell you of our experience with our Mercury equipment of 1200 trailers and five electric tractors, as well as the three other tractors which we use in connection with our Mercury equipment.

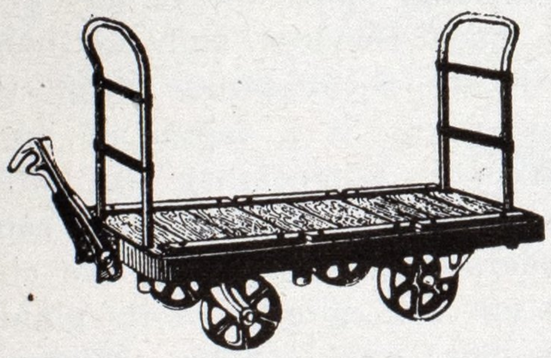
Without a doubt, this innovation in freight-handling has been a fine thing for us all around. But, as there's nothing more convincing than facts, they can speak for themselves. The total cost of the equipment above referred to was, in round figures, about $85,000.00. Our saving in freight-handling costs, compared to the previous year, and with an increased tonnage, was about $80,000.00 -- almost enough saved the first year to pay for the entire equipment!

Due to the lessened amount of handling of freight, there is undoubtedly an indirect saving in claims for damage; as in the ordinary course of handling, freight is placed on board steamer, and not unloaded the loaded trailer being placed on wagon at port of destination. Our trailer is ready to deliver to wagon at port of destination.

We appreciate very highly the interest you and Mr. Millar have personally taken in our problems, and the many helpful suggestions you have made so that we could avail ourselves of all of the advantages of your equipment.

Yours very truly

GOODRICH TRANSIT COMPANY,
President & General Manager.



Type "A-310" all purpose castor steer trailer.



Type "H" Electric Powered Tractor with famous Mercury Internal Gear Drive.

Read the letter thoughtfully. Isn't it logical that if thinking will devise a material handling method for Goodrich that reduced former costs $80,000 a year that thinking can also build you a method productive of large profits?

To assist in working out a better lower cost method, use our experience and engineering ability. For over 15 years we have worked almost exclusively with terminal problems and can be of real service to you.

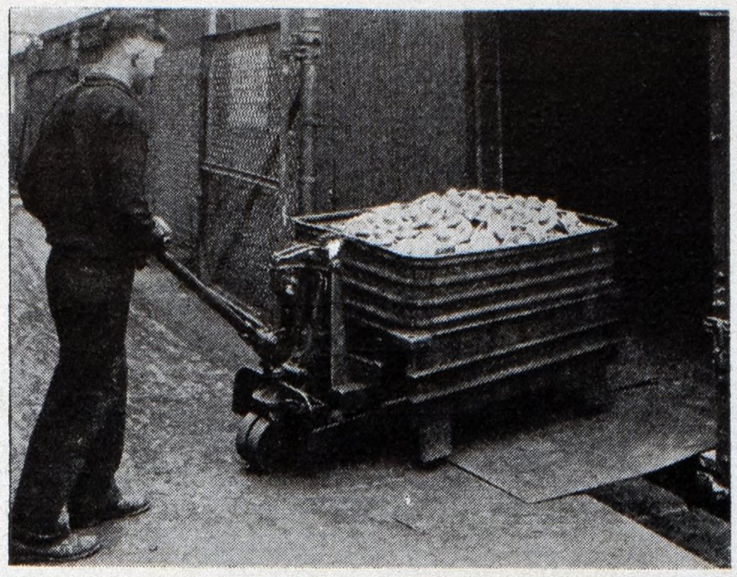
To gage your gains send for a copy of COMRADES OF PROGRESS. Copies are sent without obligation. Write.

Mercury Manufacturing Company
4160 South Halsted Street
Chicago, Illinois

Canadian Representatives:
Laurie Machinery Company, Ltd.
Insurance Exchange Bldg., Montreal, Canada

Mercury
Trackless Train



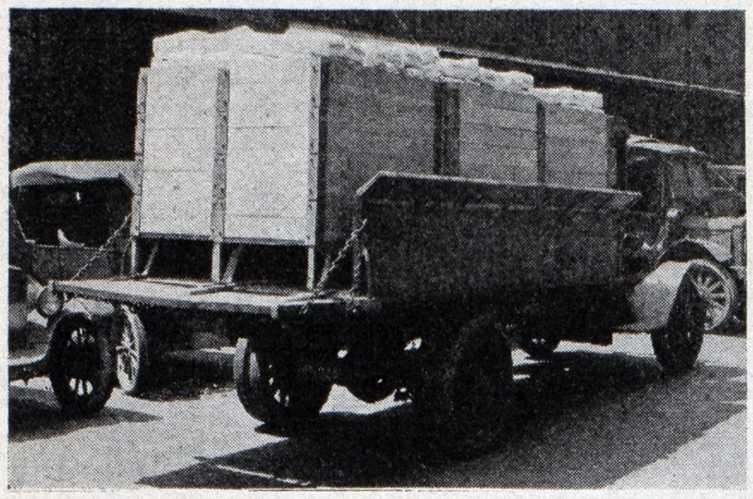


Top Left

At San Francisco the Drayage Service Corporation of Oakland loads about 150 tons of merchandise daily onto special platforms and moves it with Jacklifts into boxcars. At Oakland the merchandise is loaded direct into company trailers for delivery. Handling cost was reduced about 40% this way.

Top Right

A Jacklift removing a very heavy load of castings from a freight car. The extra high lift of the Jacklift prevents catching on inclines. There is always ample clearance when you use a Jacklift.





Lower Left

Shipping flour by motor truck on Lewis-Shepard special Skid Platform Containers. A Jacklift handles the platforms at each end of the trip.

Lower Right

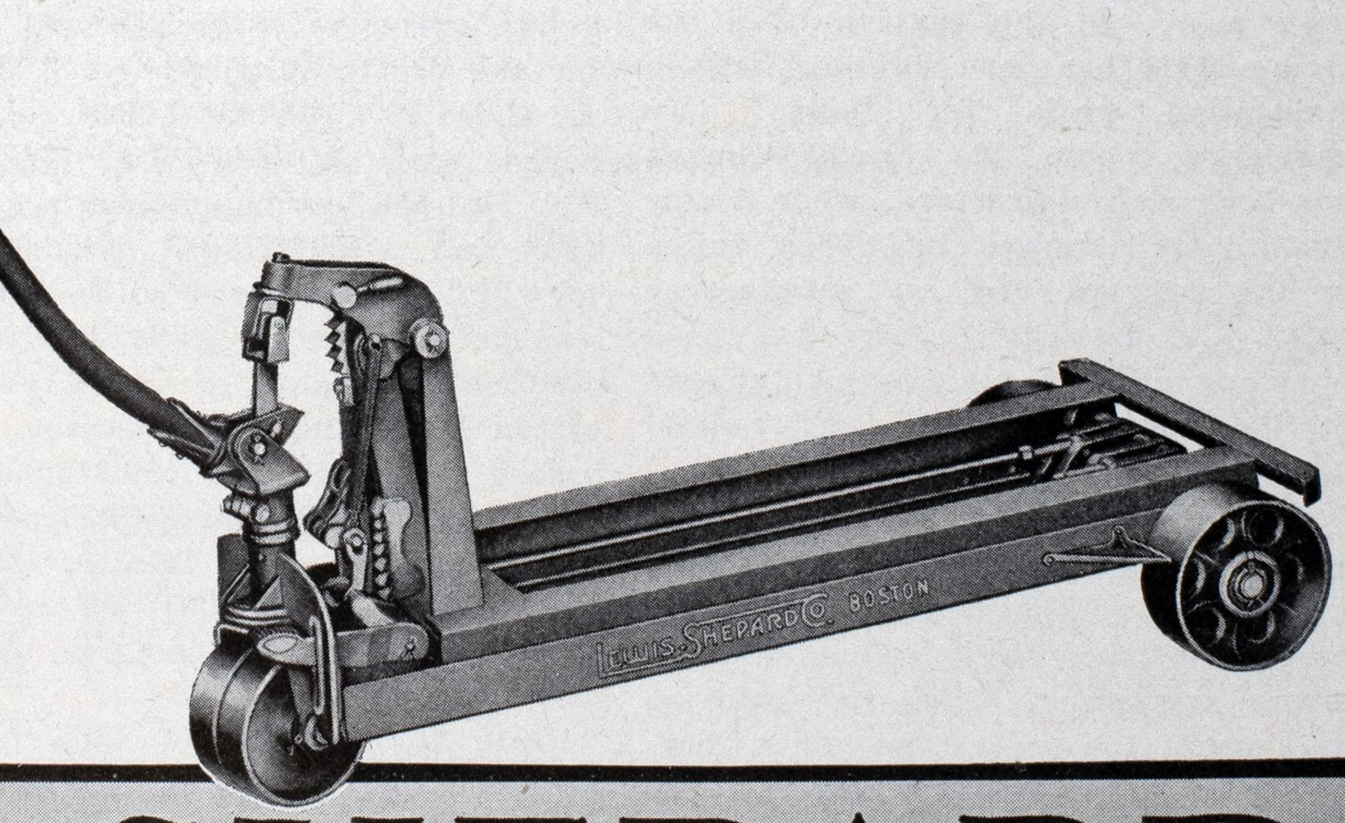
And here goes an extra heavy load of scrap brass over a tough, rough incline for shipment by freight. The high lift of the Jacklift clears these rough edge, steep inclines without scraping or tipping.

JACKLIFTS and SKID PLATFORMS

Save Time, Money, and Storage Space at Marine and Railway Shipping Terminals

Large steamship and railroad companies already use Lewis-Shepard material handling equipment to speed their operations in the shipment and storage of goods. For over 14 years the Jacklift has been the Master Lift Truck, possessing all the good features of any lift truck. Of great value in the Marine field is the high lift and the vertical release check. The position of the vertical release check is at the forward end of the Jacklift. Dropping of heavy loads and occasional misplacement of loads cannot injure the Lewis-Shepard vertical release check as would be the case if it were installed in a horizontal position between the side frames. All loads come down easily and safely, without shock or jar, when you use a Jacklift, the Master Lift Truck.

We would like to send you our circular "Ship on Skid Platforms" and a copy of our *new* catalog, "Lewis-Shepard Engineering". Write Lewis-Shepard Company, 170 Walnut Street, Watertown Station, Boston, Mass.

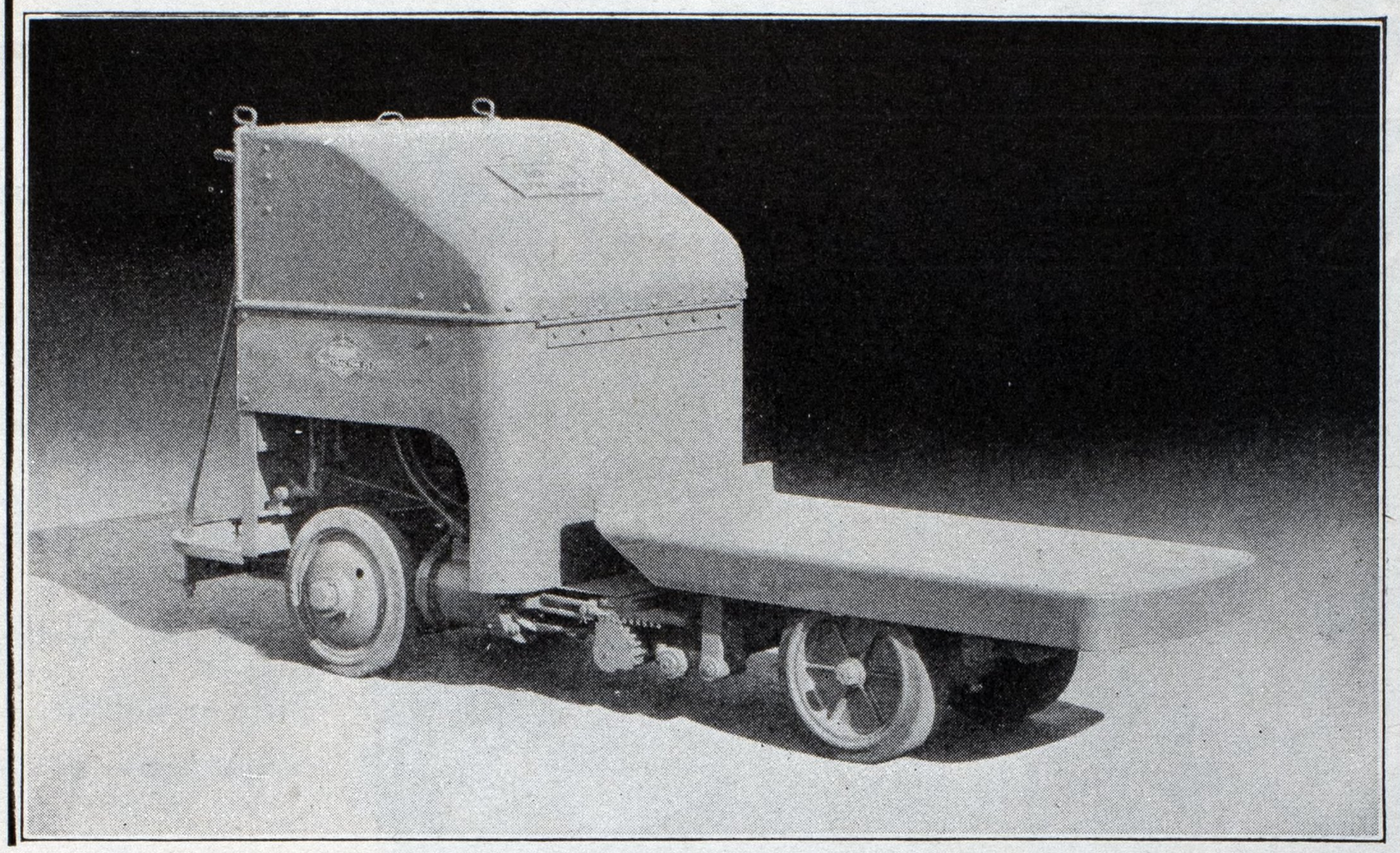


LEWIS-SHEPARD

Many Large Manufacturers are Shipping their Goods on Lewis-Shepard Skid Platforms

HIRE THIS STEVEDORE

For Fourteen Weeks



Clark 3-Ton Truclift, code "Moose". Platform 26 x 54 ins. Lowered 17 ins. Raised 22 ins. Lifts 6000 lbs. in 8 seconds

He will work the rest of his life for Coolie Wages

Chinese coolies at six, twelve, twenty cents a day! Do you envy such labor costs? Then realize on them—for Clark Truclifts pay off their initial investment promptly, then work for the cost of maintenance, gas and oil.

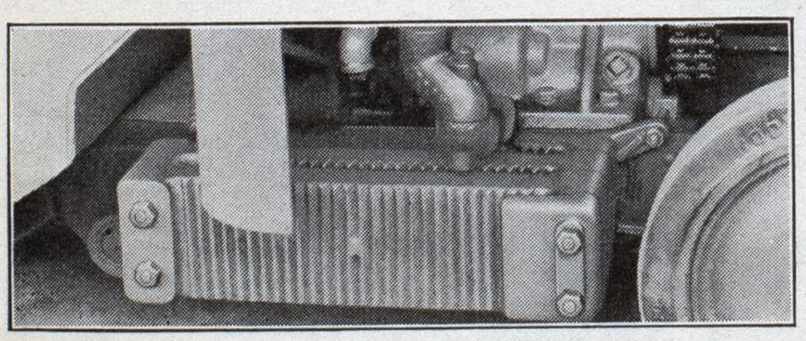
One big transportation company replaced men with hand trucks by Truclifts,—one Truclift and one operator to every seven hand truckers. The saving in only fourteen weeks paid for the equipment. Daily operating costs thereafter could be compared with twenty or thirty bowls of rice. For one Truclift is equal to twenty or thirty coolies.

There are clear facts giving the story of these savings in detail. Send the coupon for cost survey.

CLARK TRUCLIFTS

CLARK TRUCTRACTOR CO.,
Battle Creek, Mich.

Send the Coupon



Clark Condensing Muffler

The 3 Ton Truclift is equipped with this patented muffler which converts exhaust gases into water, insuring quiet safe operation. Clark equipment approved by Board of Underwriters for use on docks, covered piers, in the holds of ships, etc.

Clark Tructractor Co.

Please send certified engineering survey giving in detail the savings made by Clark Truclifts, handling freight on docks and steamers.

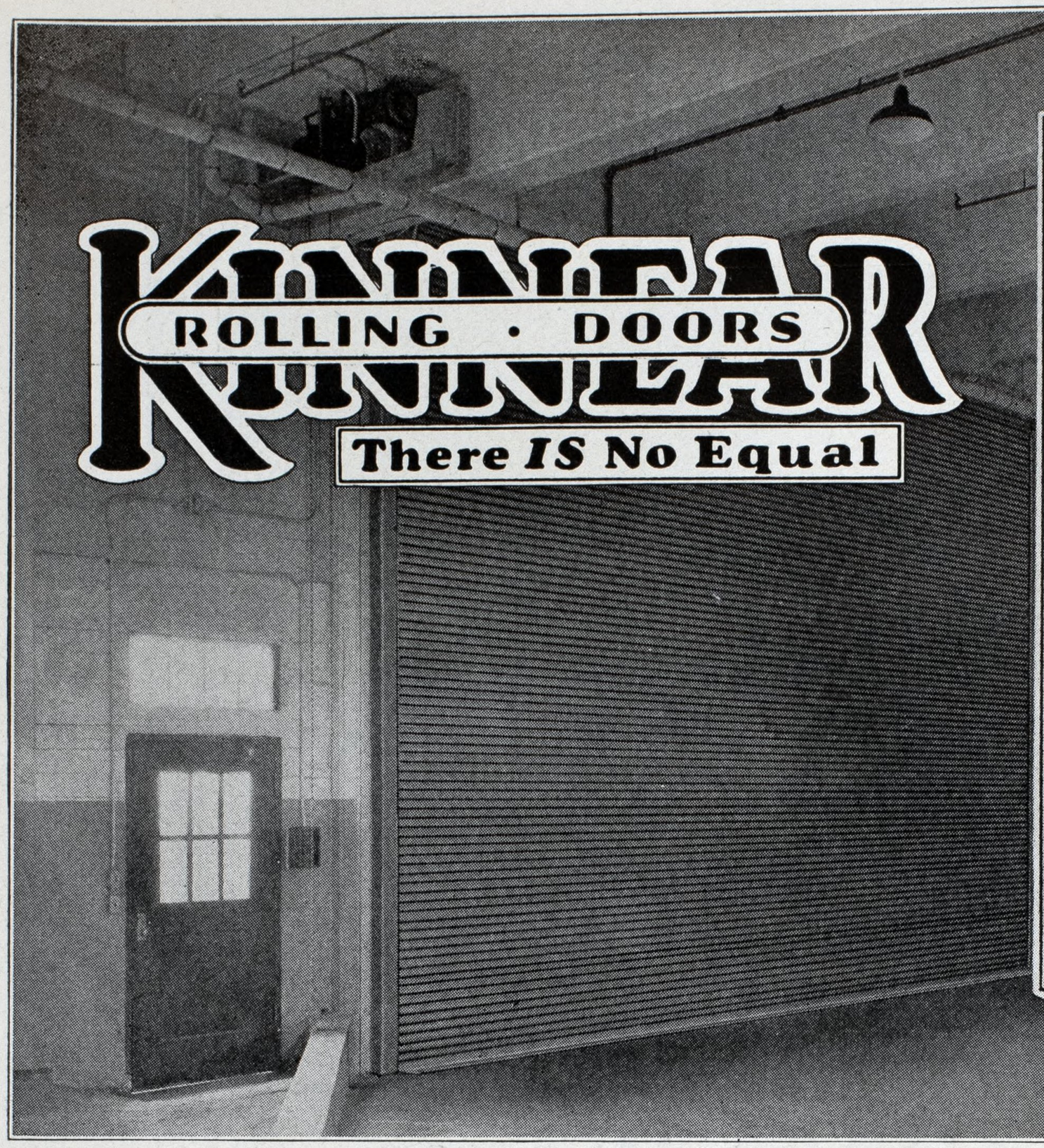
Name .....

Company .....

St. and No. .....

City and State .....

M.R.5-29



Save Space
Save Money
Save Time

Use Kinnear Steel Rolling Doors

On Port and Terminal Structures where space saving is so important, and easy, quick operation so absolutely essential, Kinnear Steel Rolling Doors are rendering their unfailing service.

Write for Catalog and request free estimates without obligation.

Branch Offices in Principal Cities

The Kinnear Manufacturing Co.
16 Field Ave., Columbus, O.

Griscom-Russell
Heat Transfer Apparatus

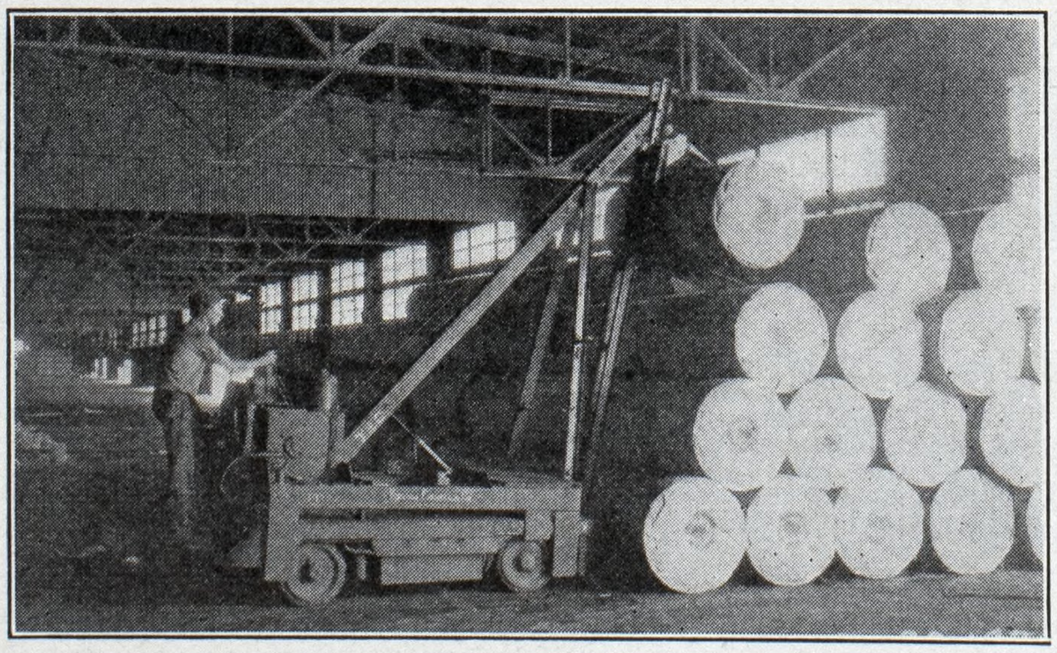
Reilly Heaters
For boiler feed and general service
Serving over 12,000,000 BHP

Evaporators
(Scale-Shedding)
Bentube and Reilly Types
Serving over 10,000,000 BHP

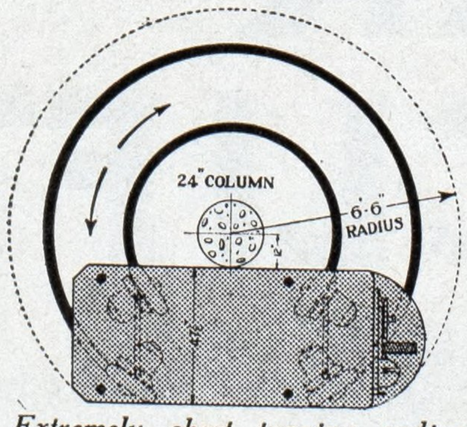
Multiwhirl Coolers
For cooling oil to turbine bearings and reduction gears. For cooling Diesel engine jacket water.
Thousands in use.

THE GRISCOM-RUSSELL COMPANY, 285 Madison Ave., New York
Chicago: Monadnock Bldg.

*2



The one complete system of mechanical freight handling for marine terminals.



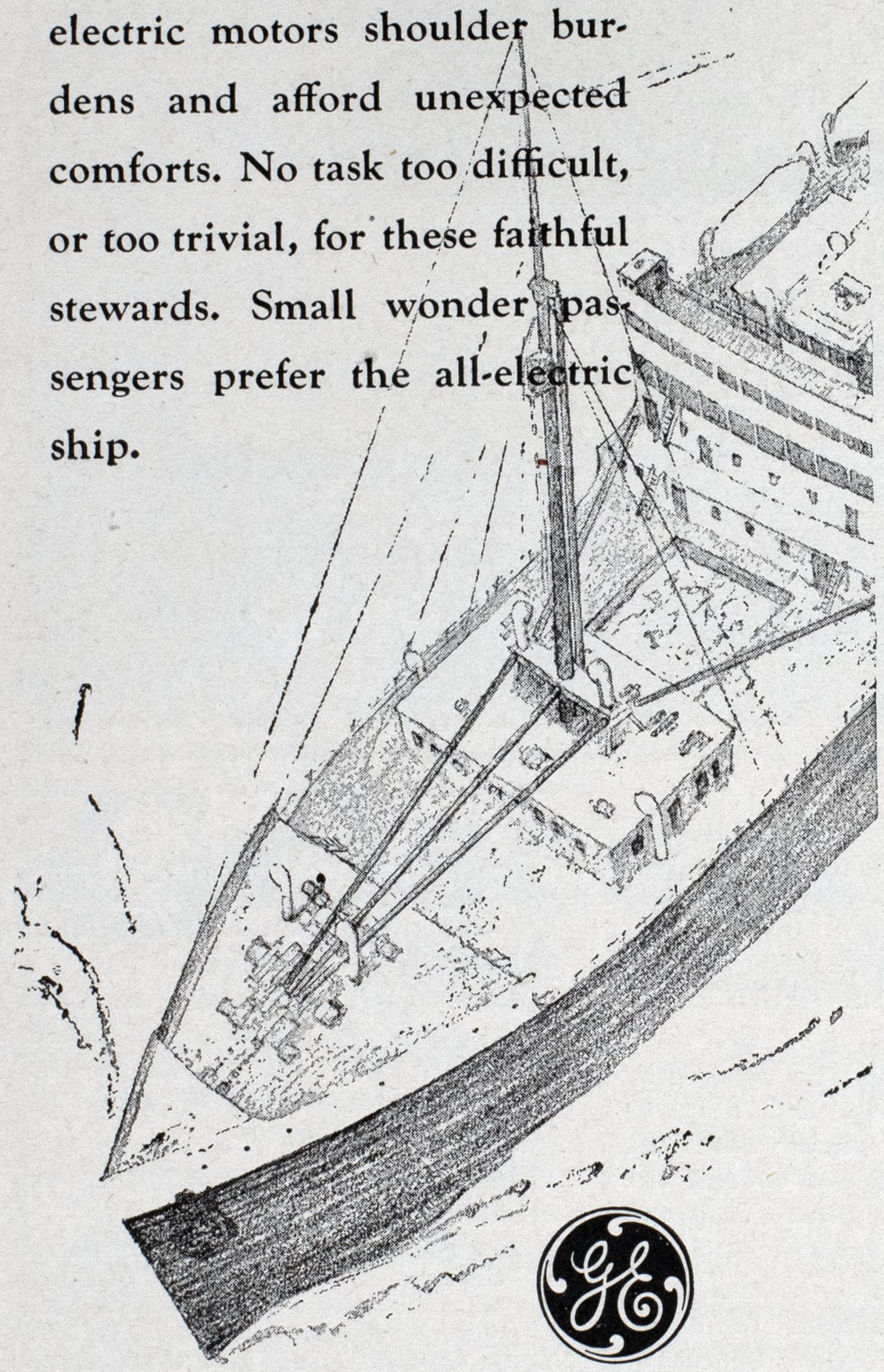
Extremely short turning radius makes Crane Attachment feasible

VERSATILITY

CARRYING AND STACKING 1,300 POUND ROLLS OF NEWS PRINT PAPER. —An attachment for the TEC Truck permits each truck operator to transport and stack 40 to 50 rolls per hour. No helper is needed.

TEC
Terminal Engineering Co.
17 Battery Place, New York, N. Y.

THE drudgery and discomforts of seafaring are going by the board. Your modern mariner disposes of his irksome tasks by using a force which plays to his liking at the turn of a switch or the touch of a button. On every deck, electric motors shoulder burdens and afford unexpected comforts. No task too difficult, or too trivial, for these faithful stewards. Small wonder passengers prefer the all-electric ship.



General Electric manufactures complete turbine propulsion machinery, electric equipment for ships' auxiliaries and Diesel-electric drive, searchlights, and other electric marine accessories. Descriptive literature or the services of a marine-engineer specialist will be furnished promptly if requested of the nearest G-E office.

231-24

GENERAL ELECTRIC

General Electric Co., Schenectady, N. Y., Sales Offices in Principal Cities



For the dining salons of
S. S. Virginia
S. S. Pennsylvania
S. S. California
we designed and built more than 1000 of these beautiful chairs.

PROPERLY DESIGNED CHAIRS

"M & S Chairs are designed for comfort and built to last"

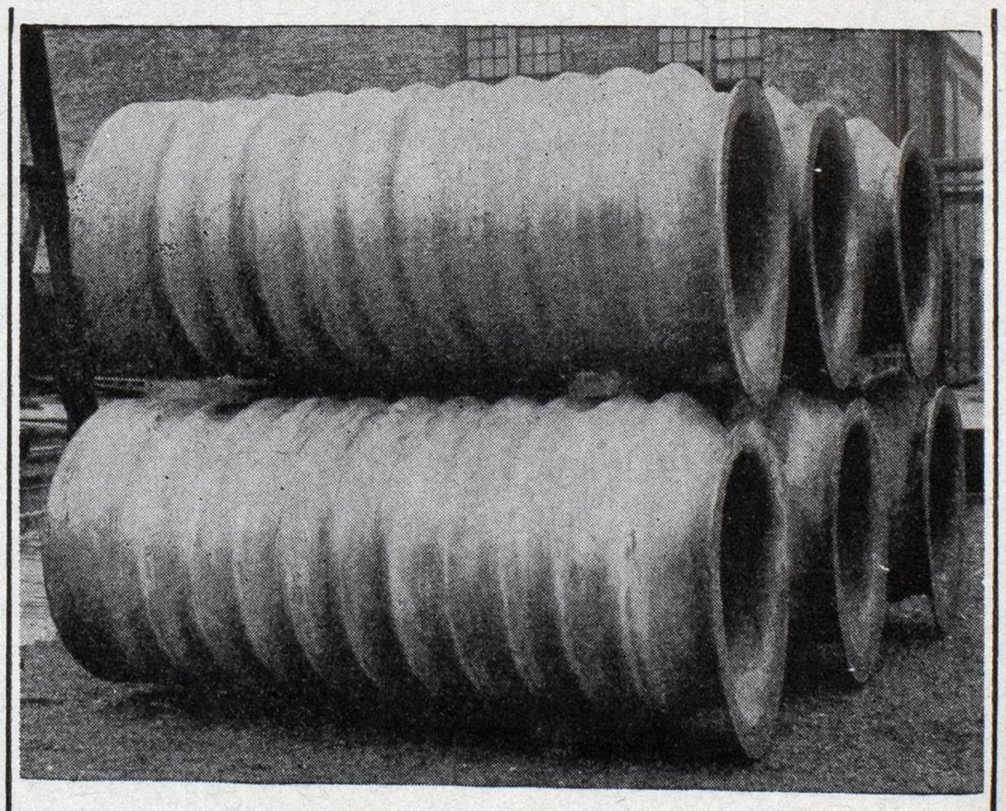
For Steamship use must be of rugged construction to give satisfactory service. Years of experience designing and constructing chairs for every purpose—hotels, banks, steamships, corporations and public buildings—permit us to give valuable and free advice to Architects and Dealers figuring on large installations. Our Designing Department is at your service.

THE MARBLE & SHATTUCK CHAIR CO.

New York Office
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5511 Monte Vista St.



Corrugated Marine Furnaces

A full range of sizes

The largest plant capacity in America with more than a thousand tons of firebox furnace plates in stock enables us to meet your demands for quick delivery. Continuous production for many years gives assurance of superior quality.

TAYLOR FORGE & PIPE WORKS

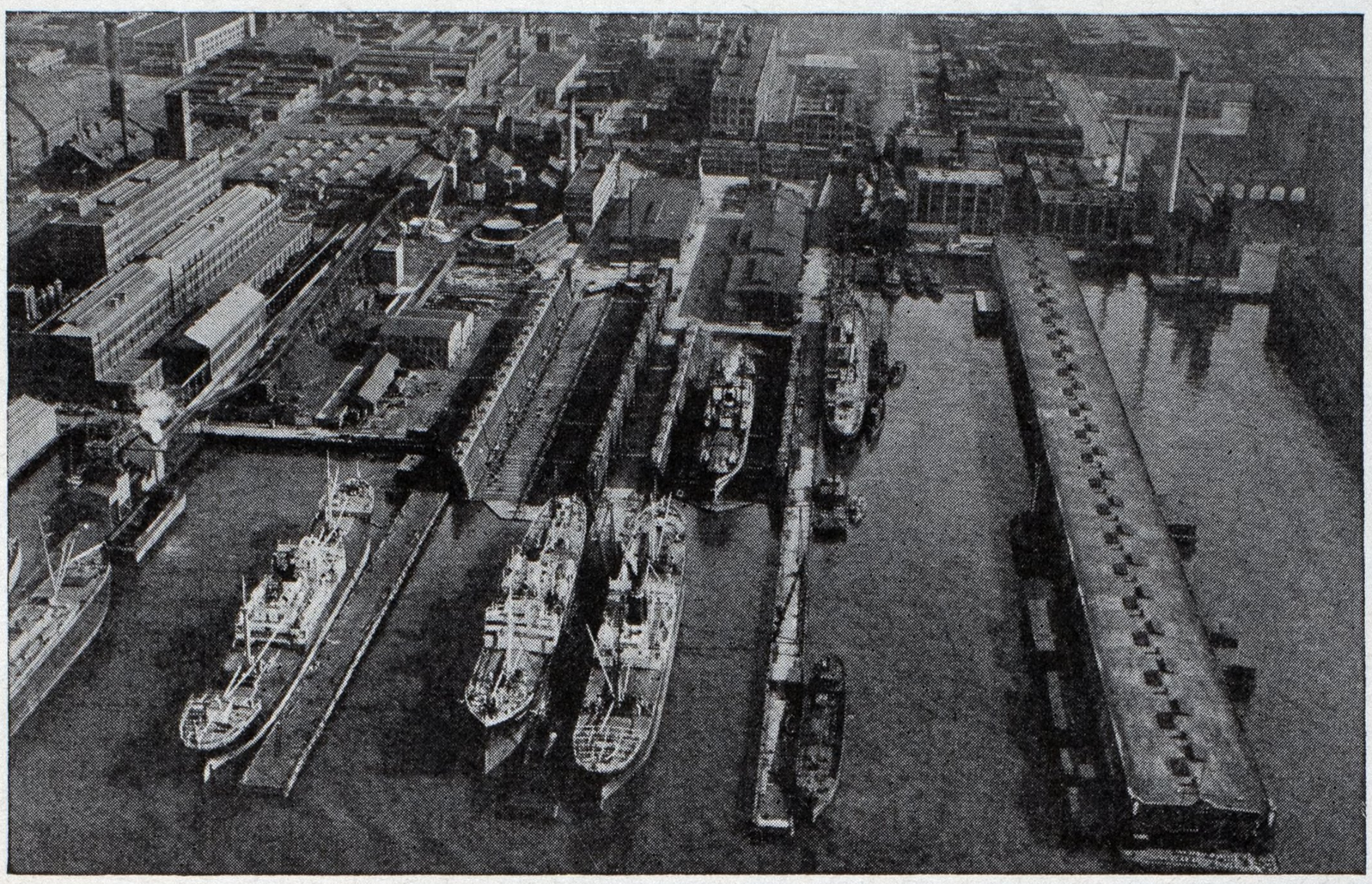
(Formerly American Spiral Pipe Works)

Main Office and Works:
Box 485, Chicago, Ill.

New York Office: 50 Church Street

MR5-Gray

MARINE REPAIRS



The MORSE Plant of United Dry Docks, Inc.

One of the six well-equipped plants of United Dry Docks, Inc.

The company operates under one management, with consequent economy, increased efficiency and wider scope of service to its clients, the plants formerly owned by

Theo. A. Crane's Sons Company
W. & A. Fletcher Company
Morse Dry Dock & Repair Company
New York Harbor Dry Dock Company
James Shewan & Sons Company, Inc.
Staten Island Shipbuilding Company

Customers who prefer to deal with the yard they have become accustomed to will find the same personnel ready to meet their individual requirements.

The Morse Plant is especially equipped for reconditioning, conversion work and general repairs on larger vessels. Some of its more important facilities are:

2 Dry Docks

One of 27,000 tons and one of 15,000 tons capacity, with large pumps, electrically operated, saving time in docking.

Piers and Basins

Four Piers, two of which are fitted with derricks for heavy lifting. Ample Wet Basin capacity for any kind of work.

Shops

Complete modern equipment for every class of repair work, with special machines for heavy work on crank shafts, propellers and turbines.

Diesel Engine Repairs

Specially equipped for Diesel engine work under the supervision of a technical expert.

A telephone call to Sunset 5100 will bring a company car to meet visitors at the 59th Street B. M. T. Subway Express Station.

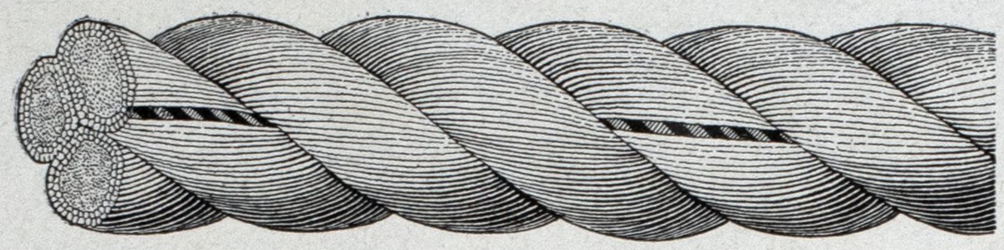
UNITED DRY DOCKS

INCORPORATED

11 Broadway **New York**

FIBORE
(FIBRE CORE)
MANILA ROPE

Patented June 23, 1925; Oct. 20, 1925; Aug. 3, 1926



Look for the Orange and Black "Twinyarn" Marker

MADE water-resisting by our patented WATERFLEX process, FIBORE is unquestionably the strongest and most efficient type of large cordage ever developed; it remains flexible at all times, and is easy to handle and splice—*wet or dry.*

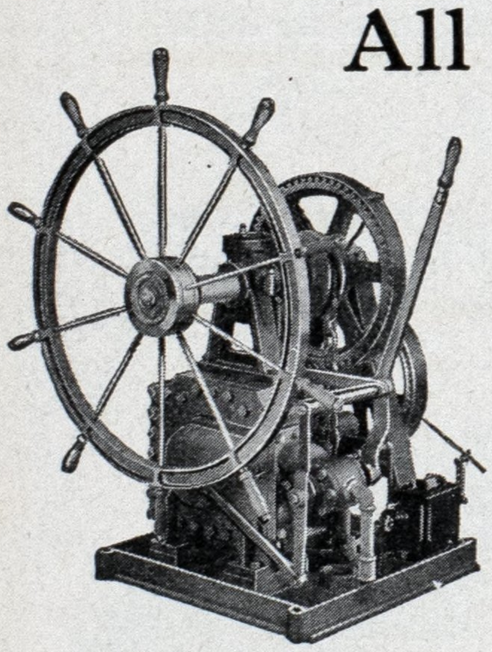
WHITLOCK CORDAGE COMPANY

Factory and Warehouses
Jersey City, N. J.

46 South Street
New York

Branches
Chicago, Boston, Kansas City *and* Houston

All Over the Lakes They're Using Dake's

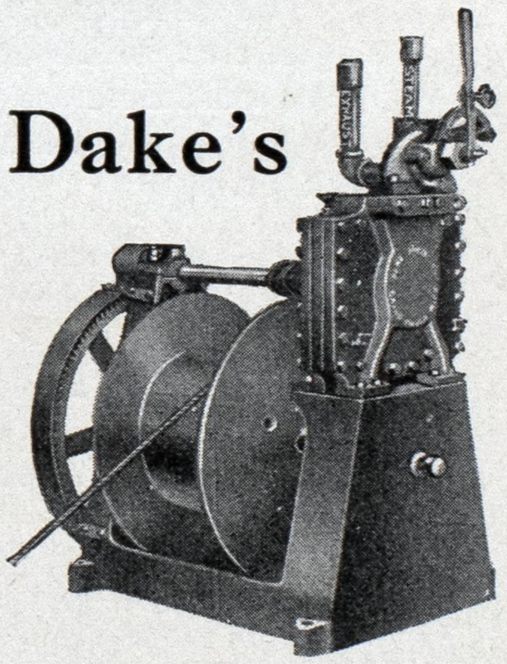


"CS" Steering Gear

Go into any port of consequence on the Great Lakes and you will find vessels using DAKE Steering Gears, Capstans, Windlasses or other auxiliaries. Ask the owners and you will find they give efficient dependable service, with the least expense for upkeep. DAKE Auxiliaries are all simple of construction and very compact. They require less space and very little attention. Write for information on any auxiliaries you are interested in.

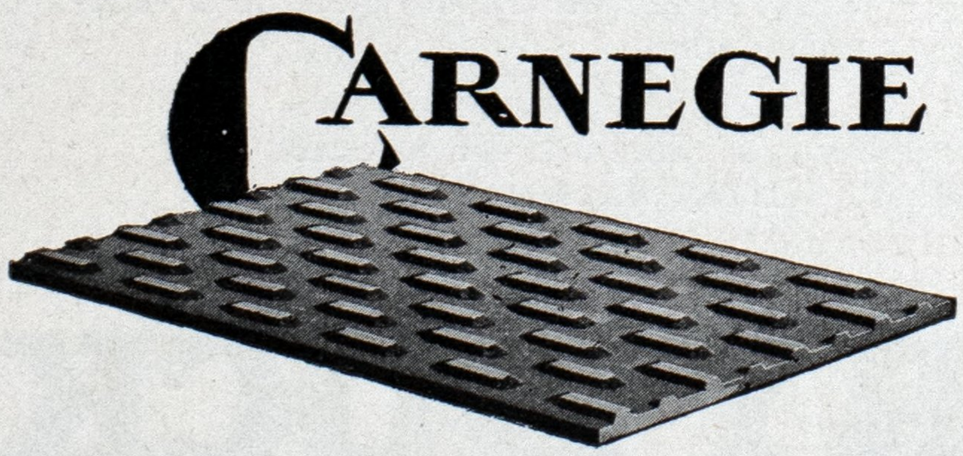
Steering Gears, Capstans (hand and steam) Anchor Windlasses, Stage Hoists, Snub Line Winches, Spud Lifters, Net Lifters and Marine Castings.

Dake Engine Co., GRAND HAVEN, MICHIGAN



Snub Line Winch

CARNEGIE FLOOR PLATE

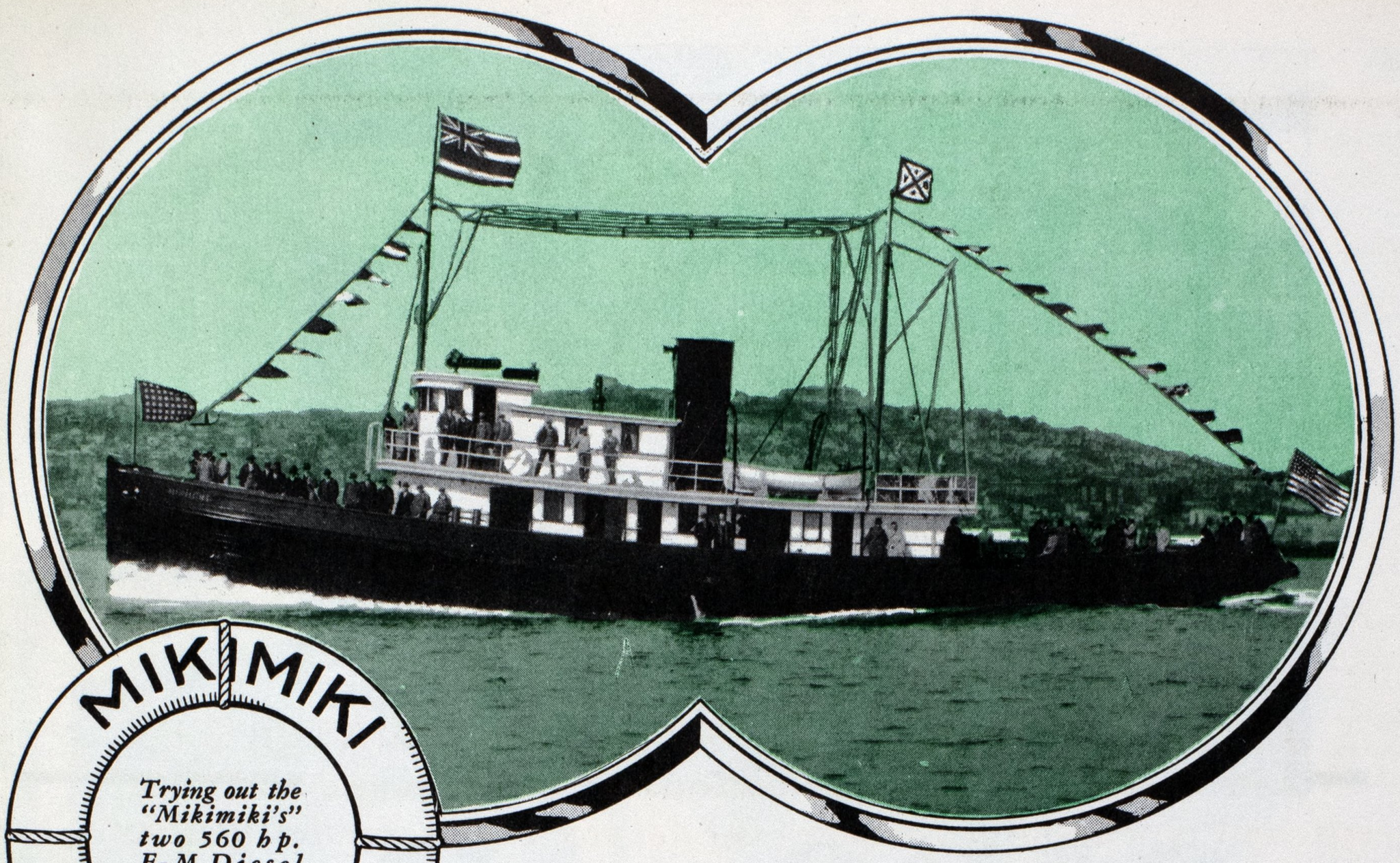


Section M-41
Thickness—$\frac{3}{16}$" to $\frac{3}{4}$" exclusive of raised figure.
Width —6" to 66".
Weight —8.8 to 31.7 pounds per square foot.

Recommended for floors, sidewalk openings, stair and traffic treads, where a safe, secure foothold is required. This design drains and cleans easily.

CARNEGIE STEEL COMPANY

Subsidiary of UNITED STATES STEEL CORPORATION
CARNEGIE BUILDING, PITTSBURGH, PA.



Trying out the "Mikimiki's" two 560 h p. F-M Diesel Engines

"Mikimiki" equipped with F-M Diesels

The equipment of the "Mikimiki," is the direct result of Young Bros. successful experience with nine F-M Diesel powered vessels.

Young Bros. handle all the towing in and around Honolulu. They found in their business they required ocean going tugs of great power, wide cruising radius, high economy and, above all, dependability.

That these engines have succeeded in meeting such rigid requirements is shown by the fact that Young Bros. have again added to the fleet their newest and finest tug "Mikimiki" (Hawaiian for "Alert and Ready to Go"). This is the largest American built ocean going Diesel tug.

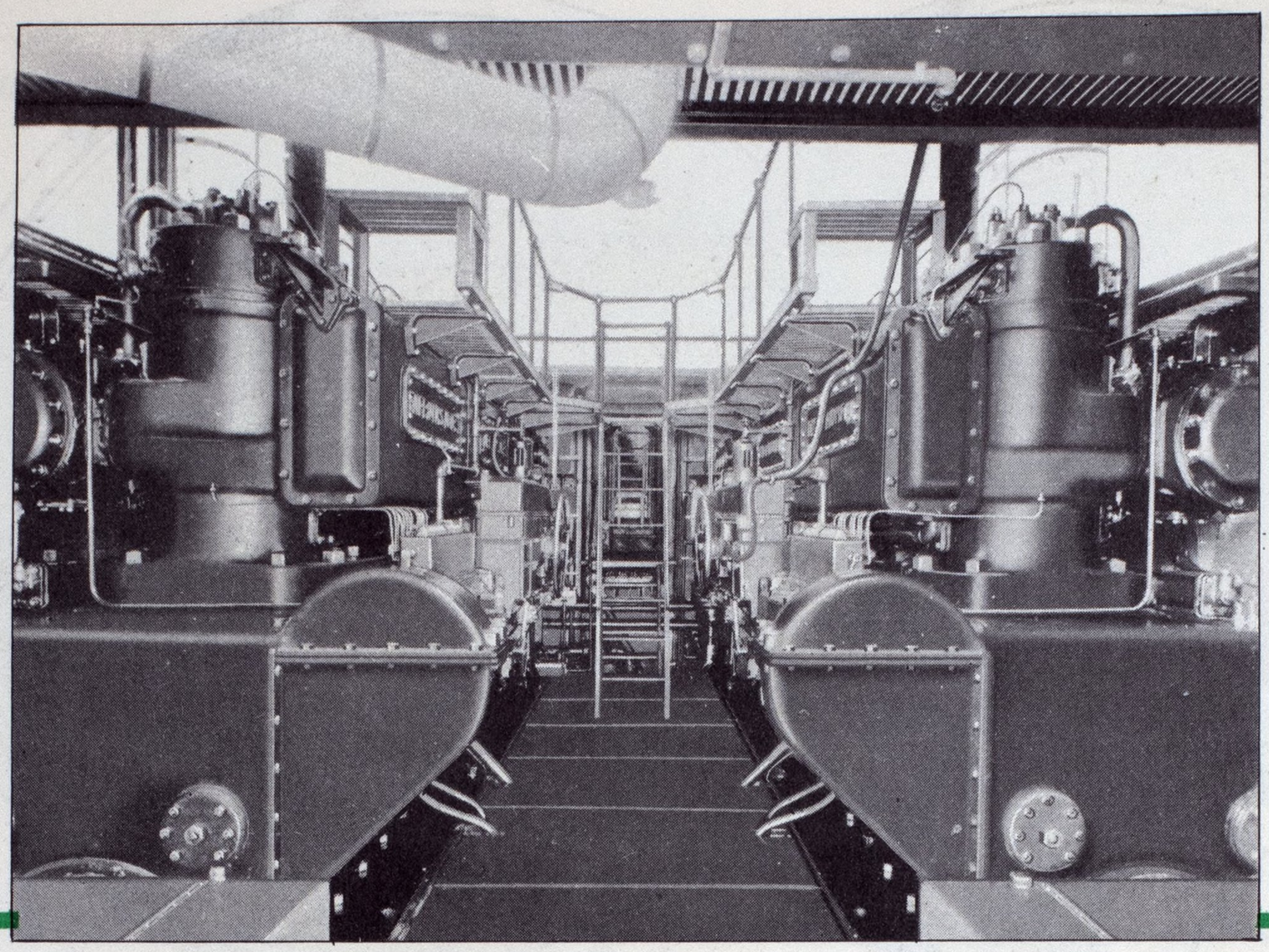
POWER PUMPING AND WEIGHING EQUIPMENT

FAIRBANKS-MORSE

DIESEL ENGINES

FAIRBANKS-MORSE DIESEL ENGINES

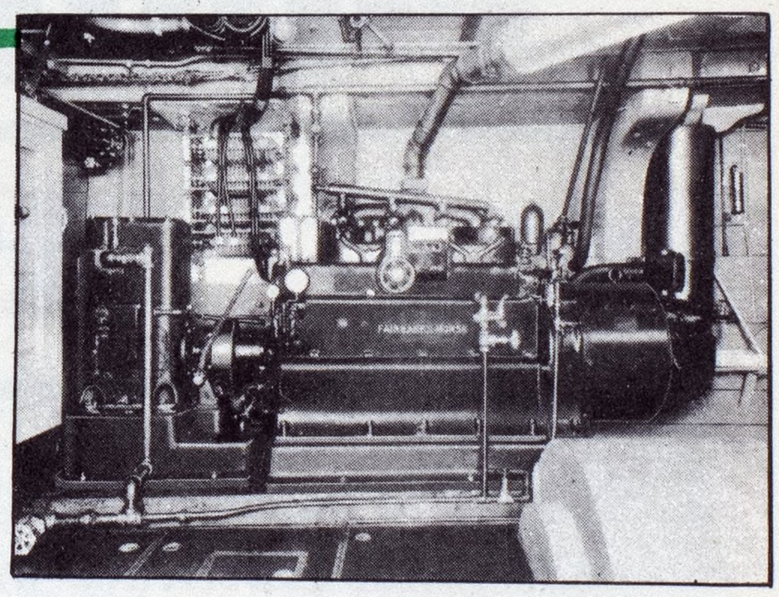
FAIRBANKS-MORSE DIESEL ENGINES



"Mikimiki" engine room showing her two 560 hp. F-M Diesel Engines

2400 miles

with a tow on her maiden trip



"Mikimiki's" auxiliary F-M Diesel 40 kw. generator and compressor set

What greater test of new propulsion equipment could be made than the maiden trip of "Mikimiki," 2400 miles from Seattle to Honolulu with a 1000 ton capacity steel barge tow—over 12 days' run without a stop?

This proves what Young Bros. have learned to expect from F-M Diesels and why they equipped this tug with two 560 hp. F-M Diesel propulsion engines and an F-M Diesel 40 kw. generator and compressor set.

Fairbanks-Morse research and development have perfected the simplest, most economical type of Diesel Engine ever designed for marine service.

FAIRBANKS, MORSE & Co., Chicago

Branches with Service Stations in Principal Ports



OA27. 241

FAIRBANKS-MORSE

DIESEL ENGINES





Emergency . . . control

Those storage batteries that stand so quietly in reserve may, in a moment of emergency, suddenly become the most vital equipment of the ship. They *must* supply dependable current for inter-compartment communication. They *must* supply emergency radio power and light.

Willard Marine Batteries are equal to the emergency. This trustworthy quality is built-in by painstaking workmanship; the connections are seaworthy and secure.

Willard Engineers will gladly co-operate with your staff in figuring storage battery requirements for steam or motor installations, new or replacement, single ship or fleet.

Address Your Nearest Factory Distributor

BOSTON, MASS.,
Statler Bldg.,
Rooms 1126-1127

CHICAGO, ILL.,
3916 South Canal Street

CLEVELAND, OHIO,
1920 Scranton Road

DETROIT, MICH.,
5946-54 Cass Avenue

LOS ANGELES, CALIF.,
16th and Hope Streets

NEW YORK CITY, N. Y.,
551 Fifth Avenue

PHILADELPHIA, PA.
3019 Walnut Street

PORTLAND, OREGON,
9th and Everett Streets

SAN FRANCISCO, CALIF.,
480 Second Street
1380 Bush Street

SEATTLE, WASH.,
Fourth Ave. & Blanchard St.

Willard Storage Batteries are the result of over twenty-five years of battery manufacture. Lead, lead compounds, battery solution and all materials are thoroughly tested before going into the battery, and each battery is rigidly inspected before leaving the factory.

MARINE BATTERIES

Willard

The Fathometer



Fifteen Years of Research

in the Laboratories of the Submarine Signal Corporation have produced this important safeguard to Navigation.

ECHO-DEPTH-SOUNDING

with the

Submarine Signal Fathometer

insures

Safe and Economical Ship Operation.

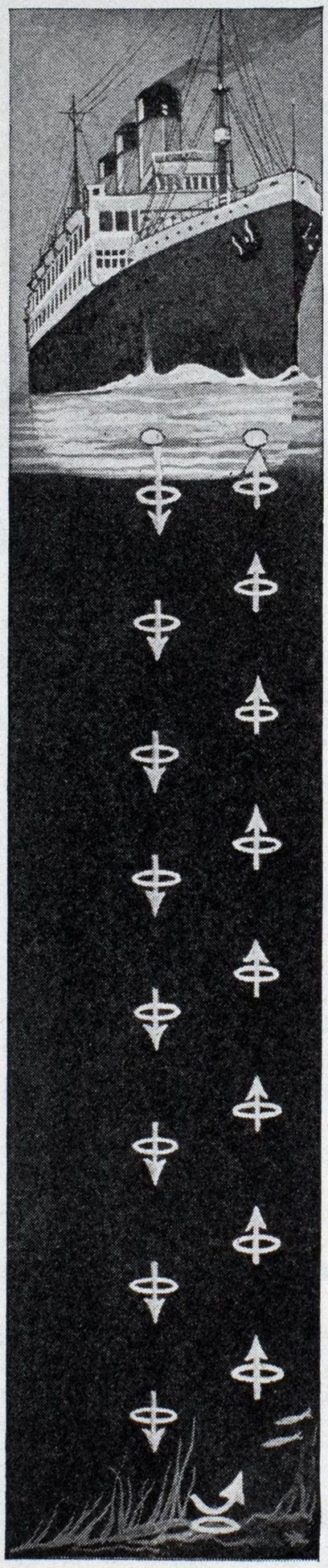
Accurate measurements of water depth flash continuously on the Dial and assure the Navigator that he is on his true Course.

Fathometer Soundings

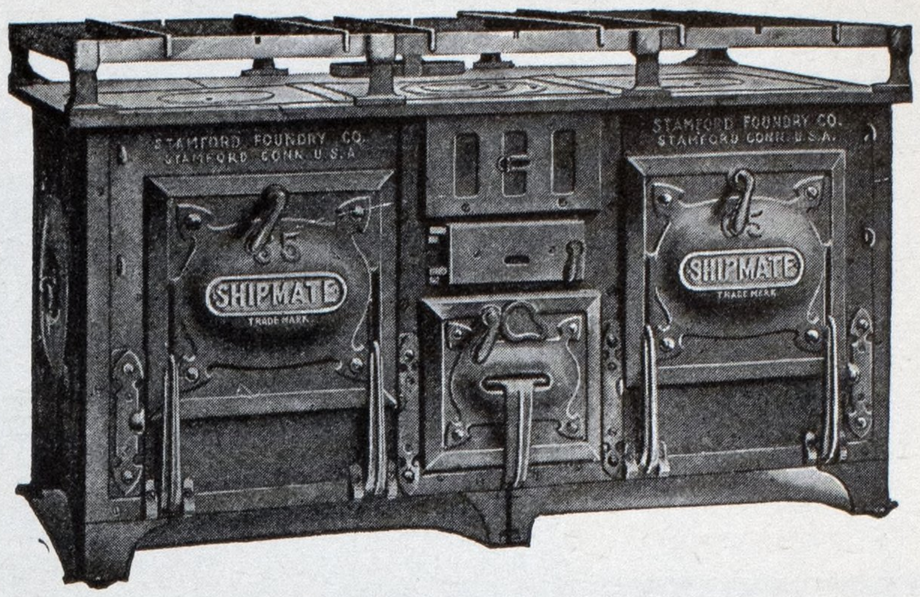
are

VISUAL
INSTANTANEOUS
AUTOMATIC

Literature upon Request



Submarine Signal Corporation,
160 State Street,
Boston, Massachusetts.



No. 65 SHIPMATE

It is sometimes said of various articles that their reputation is made by advertising.

This cannot be said of SHIPMATES, for back in 1881 when the first SHIPMATE was made, advertising was not so essential to the life of business as it is today; and it was not until SHIPMATES had made their own reputation that we began to advertise them. We realized that they were worthy of it.

SHIPMATES are made only by

THE STAMFORD FOUNDRY COMPANY

Established 1830 **Stamford, Conn.**

DEAN BROS.

MARINE PUMPS

"The Dean of Pumps on Land and Sea"

Single Style & Duplex
Piston Type & Plunger

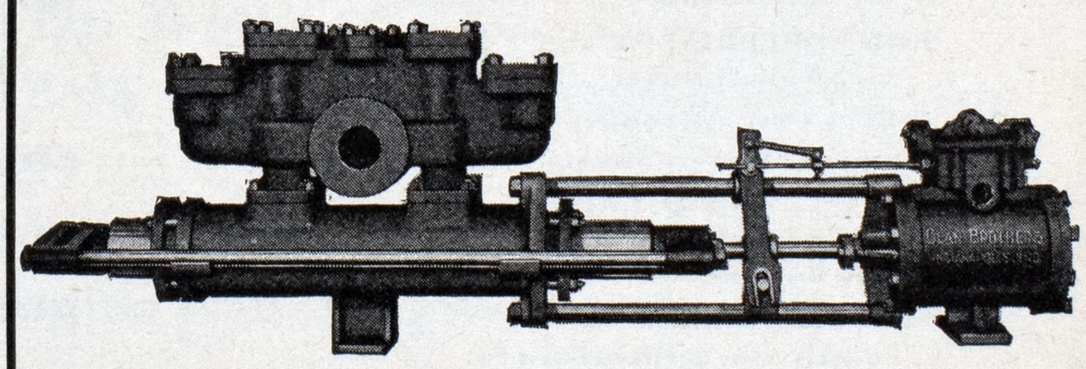


Figure No. 2311 Horizontal Single Style Double Acting Outside End Packed Plunger Trombone Pot Valve Pump For Boiler Feed & Pressure Service.

ESTABLISHED 1869

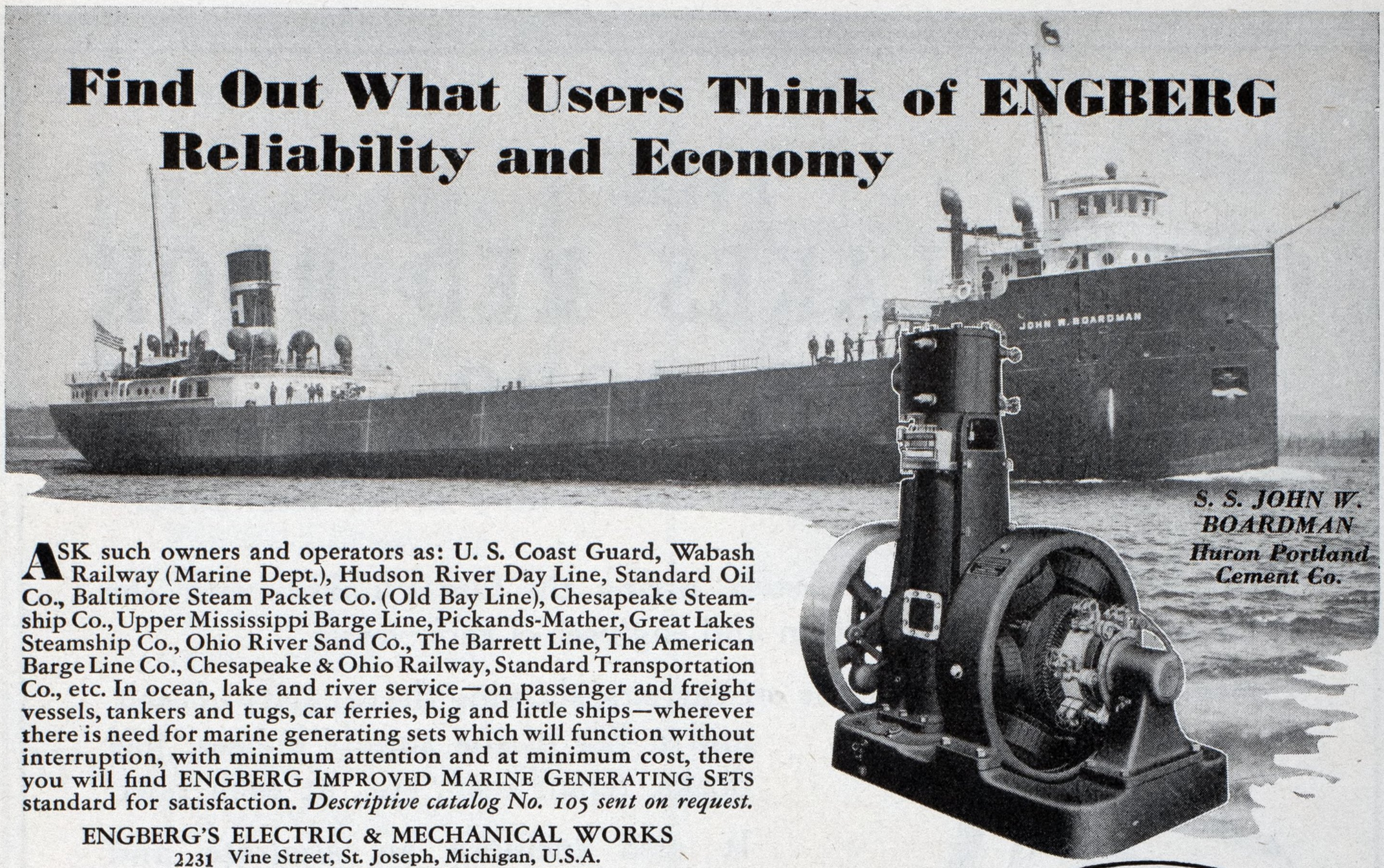
DEAN BROS. COMPANY

MANUFACTURERS OF PUMPING MACHINERY FOR ALL PURPOSES

323 WEST TENTH ST.

INDIANAPOLIS IND.

Find Out What Users Think of ENGBERG Reliability and Economy



S. S. JOHN W. BOARDMAN
Huron Portland Cement Co.

ASK such owners and operators as: U. S. Coast Guard, Wabash Railway (Marine Dept.), Hudson River Day Line, Standard Oil Co., Baltimore Steam Packet Co. (Old Bay Line), Chesapeake Steamship Co., Upper Mississippi Barge Line, Pickands-Mather, Great Lakes Steamship Co., Ohio River Sand Co., The Barrett Line, The American Barge Line Co., Chesapeake & Ohio Railway, Standard Transportation Co., etc. In ocean, lake and river service—on passenger and freight vessels, tankers and tugs, car ferries, big and little ships—wherever there is need for marine generating sets which will function without interruption, with minimum attention and at minimum cost, there you will find ENGBERG IMPROVED MARINE GENERATING SETS standard for satisfaction. *Descriptive catalog No. 105 sent on request.*

ENGBERG'S ELECTRIC & MECHANICAL WORKS
2231 Vine Street, St. Joseph, Michigan, U.S.A.

ENGBERG
GUARANTEED OPERATION

ENGINES
GENERATING SETS
GENERATORS
SWITCHBOARDS
MOTOR GENERATORS
MOTORS

MOTOR BRUSHES
BOILER GRAPHITE
CUP GREASE
PIPE JOINT COMPOUND
FLAKE GRAPHITE
SILICA-GRAPHITE PAINT
WATERPROOF GREASE

for maintenance-
DIXON'S
GRAPHITE PRODUCTS

In its place, and using the right compound in the right place *Graphite* has no equal.
It has been the accepted privilege of the Joseph Dixon organization to spread the gospel of the proper use of *Graphite* and *Graphite Compounds* to the end that maintenance cost may be held at a minimum thru the better operation and longer service that each Graphite protected part *must* render.
Power plants find in Dixon's Line products of unusual merit. The carefully graded *Flake Graphites*—each with its special uses; the exactly compounded *Graphite Greases*, each with its place in every scheme of better lubrication; the *Boiler Graphites* for cleaning steam boilers; the Graphite Pipe Joint Compounds; the Silica-Graphite Paint with years of service on so many thousands of jobs; and Dixon's Belt Dressing, a non-graphite product which prevents belt slippage and increases power thru its use on leather, rubber, and fabric belts.

DIXON'S Solid Belt Dressing

Dixon's Engineers and research men have a background of 100 years of continuous service to draw from. They are at your service to give you the benefit of our wide and varied experience.

Write for booklet 81 *KP*

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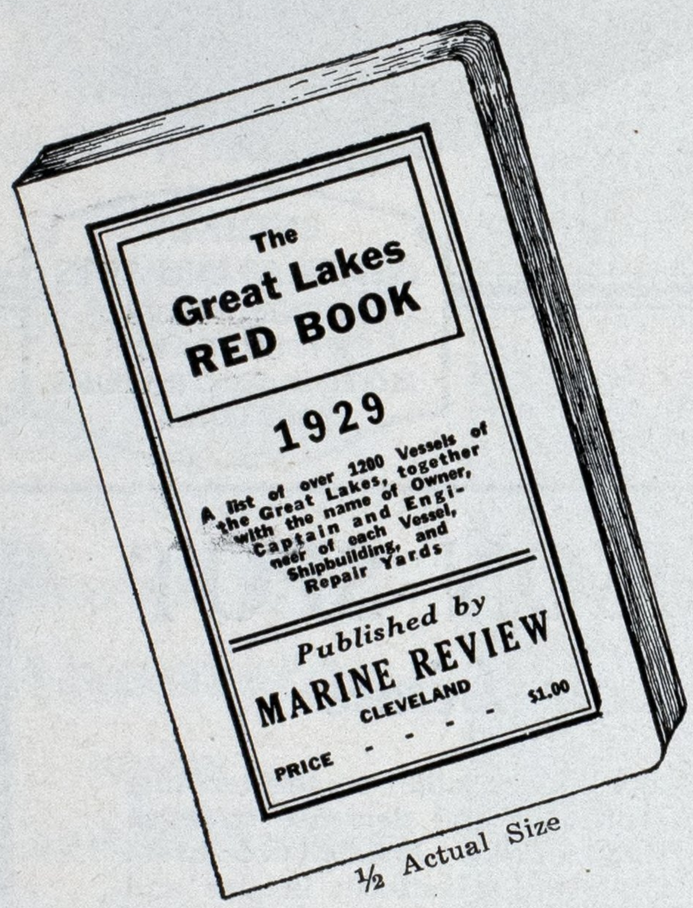
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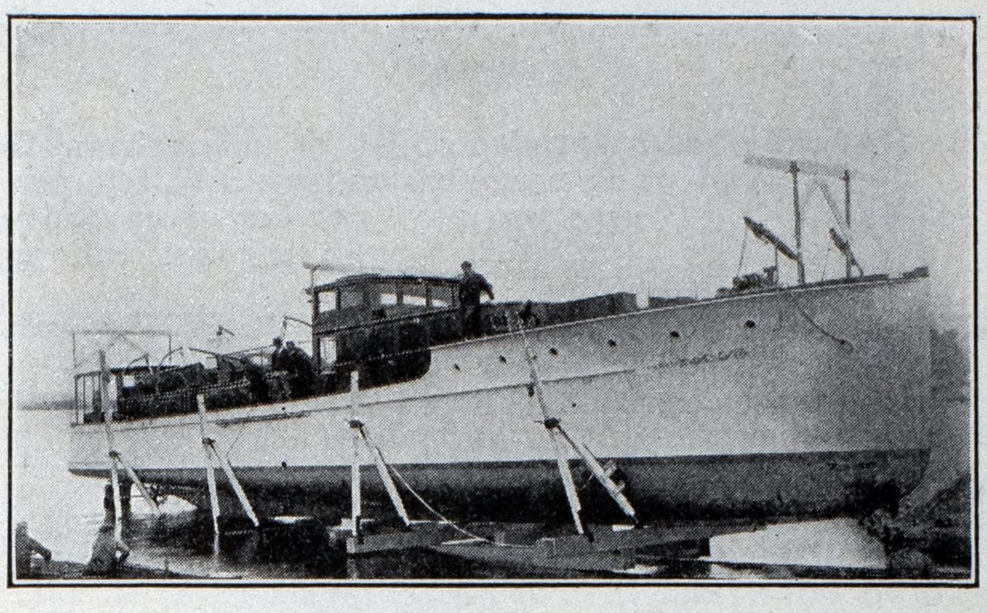
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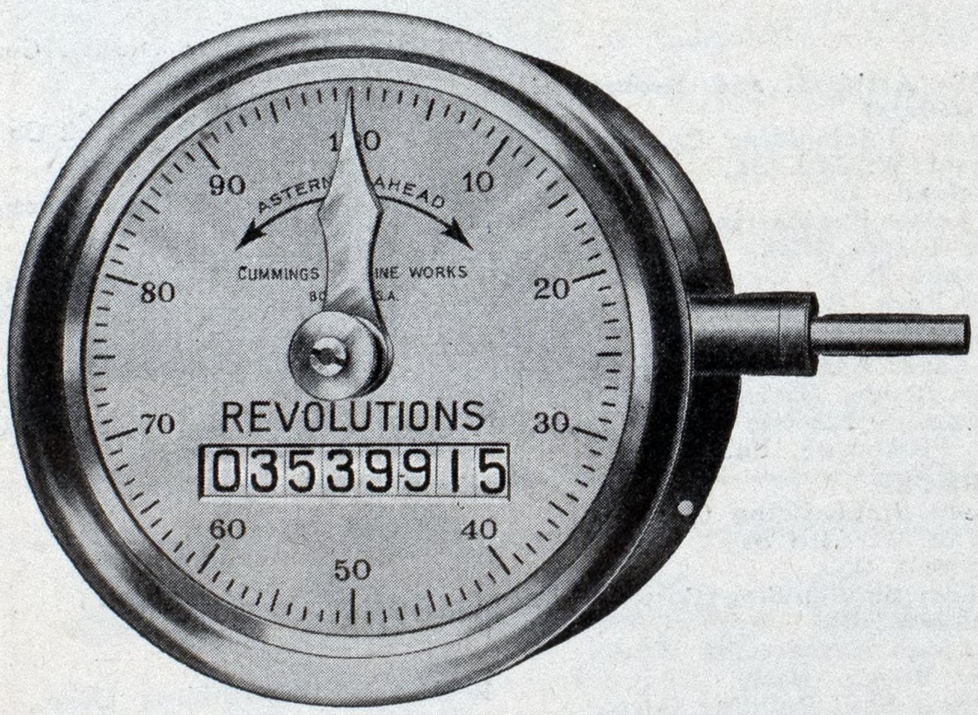
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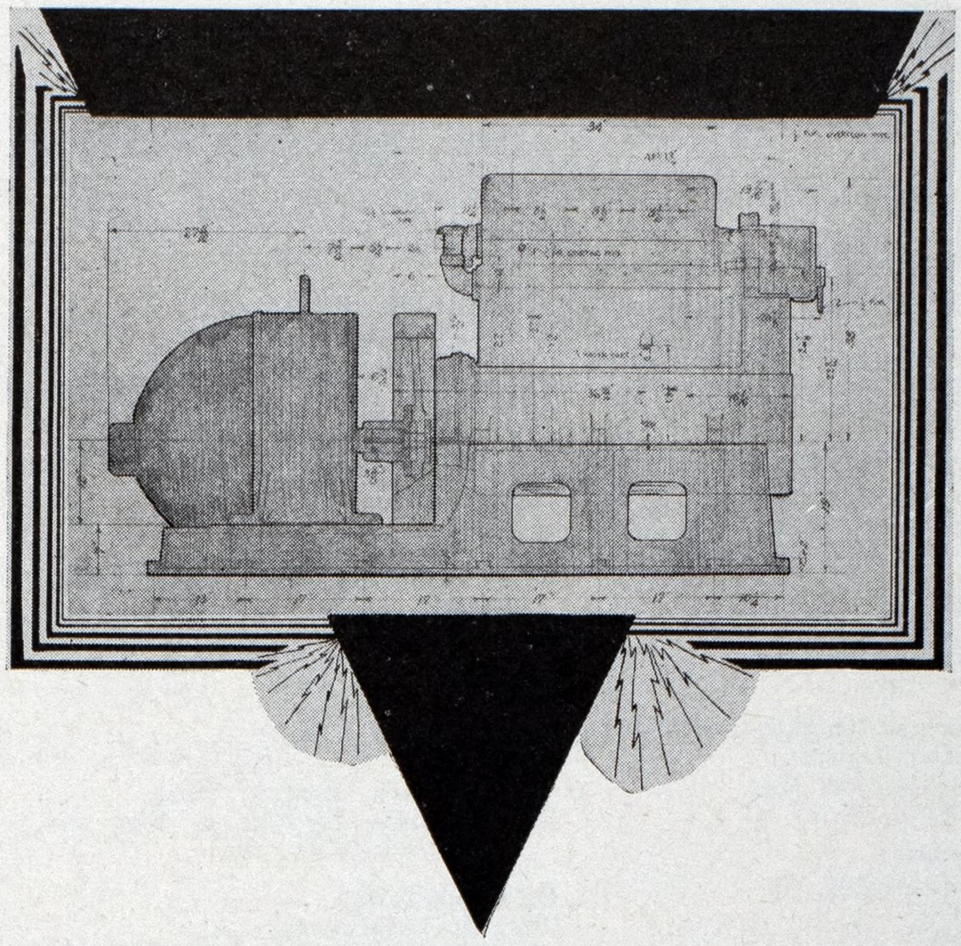
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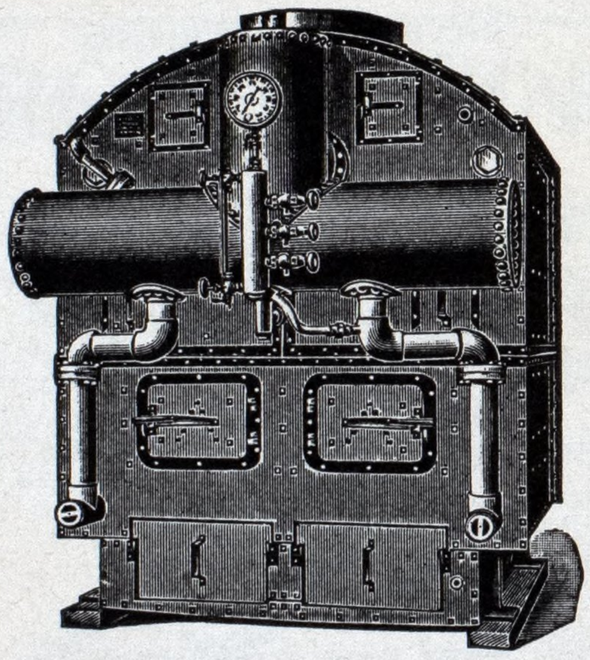
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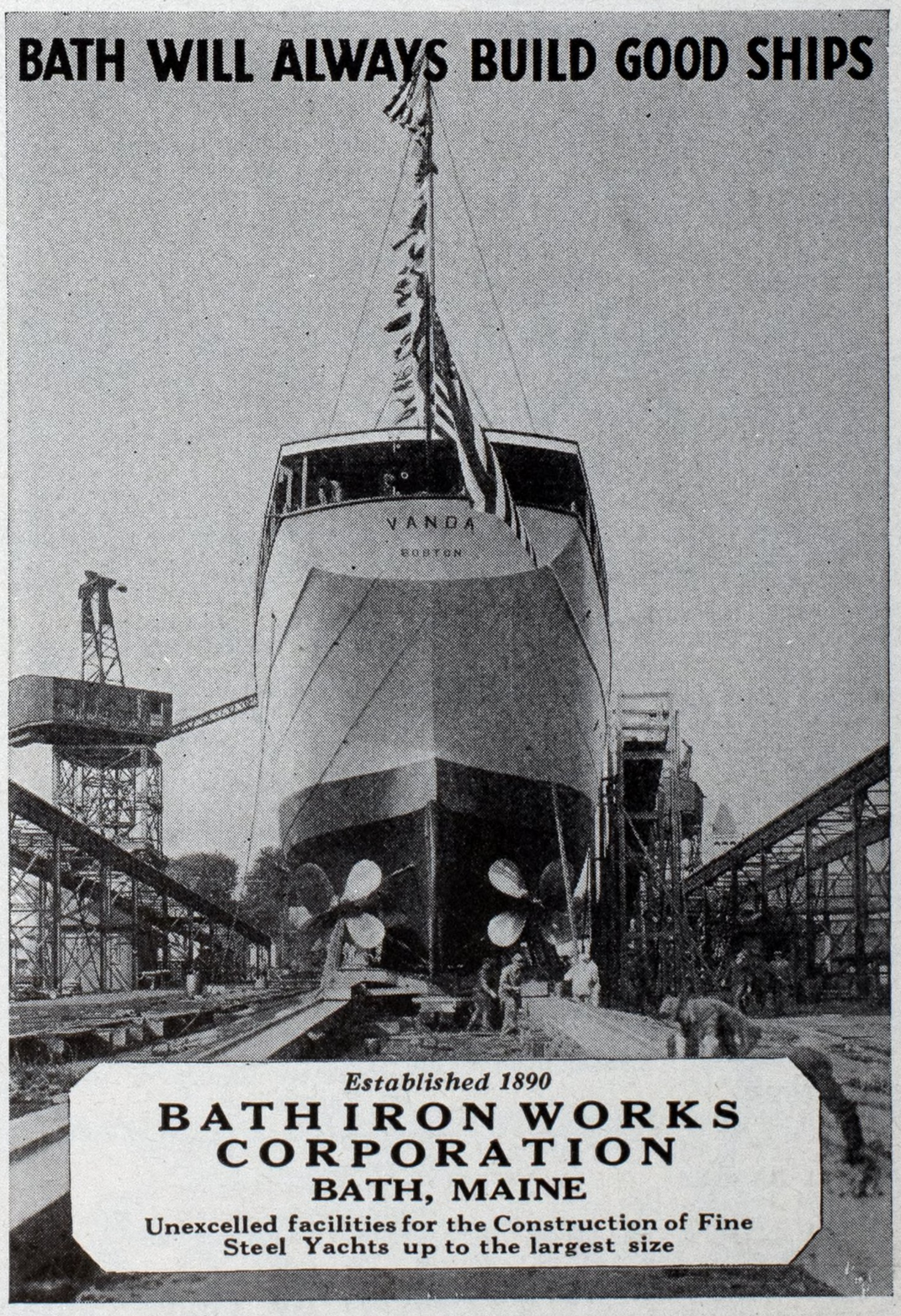
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Texas Co., The, 17 Battery Place,
New York City.
Vacuum Oil Co., 61 Broadway,
New York City.

OXYGEN (Gas)
Linde Air Products Co.,
30 East 42nd St., New York City.

PASSENGER SERVICE
Hamburg-American Line,
39 Broadway, New York City.

PIPE (Iron and Steel)
Taylor Forge and Pipe Works,
1440 S. 49th St., Chicago, Ill.

PLATES (Rolled Zinc)
Hazel-Atlas Glass Co.,
16th & Market St.,
Wheeling, W. Va.

PORT FACILITIES
Newark, Port of
City Hall, Newark, N. J.

PROPELLER BLADES AND HUBS
Sheriffs Mfg. Co., Milwaukee, Wis.

PROPELLER WHEELS
American Shipbuilding Co.,
Foot of W. 54th St.,
Cleveland, O.
Detroit Ship Building Co.,
Detroit, Mich.
Great Lakes Engineering Works,
River Rouge, Mich.
Newport News Shipbuilding & Dry Dock Co., 233 Broadway,
New York City.
Sheriffs Mfg. Co., Milwaukee, Wis.
Toledo Shipbuilding Co.,
Toledo, O.
Trout, H. G. Co., 220 Ohio St.,
Buffalo, N. Y.

PROPELLERS
Bethlehem Shipbuilding Corp., Ltd.,
Bethlehem, Pa.
Hyde Windlass Co., Bath, Me.
Newport News Shipbuilding & Dry Dock Co., 233 Broadway,
New York City.

See Index to Advertisements for Pages Containing Advertisements of Companies Listed Above

For the New AGWI Liners

BABCOCK & WILCOX Water-Tube Boilers, Superheaters, Oil Burners and No. 80 Fire Brick, for the new steamers of the Atlantic, Gulf & West Indies Steamship Lines, to operate at 300 pounds pressure and 200 degrees superheat, indicate not only the marked advance in recent years towards higher efficiency and economy in the operation of steam-driven vessels, but are the latest and best practice in the field of Naval Architecture and Marine Engineering.

THE BABCOCK & WILCOX CO.

Manufacturers of Marine Water-Tube Boilers Since 1895

SAN FRANCISCO **NEW YORK** **CLEVELAND**

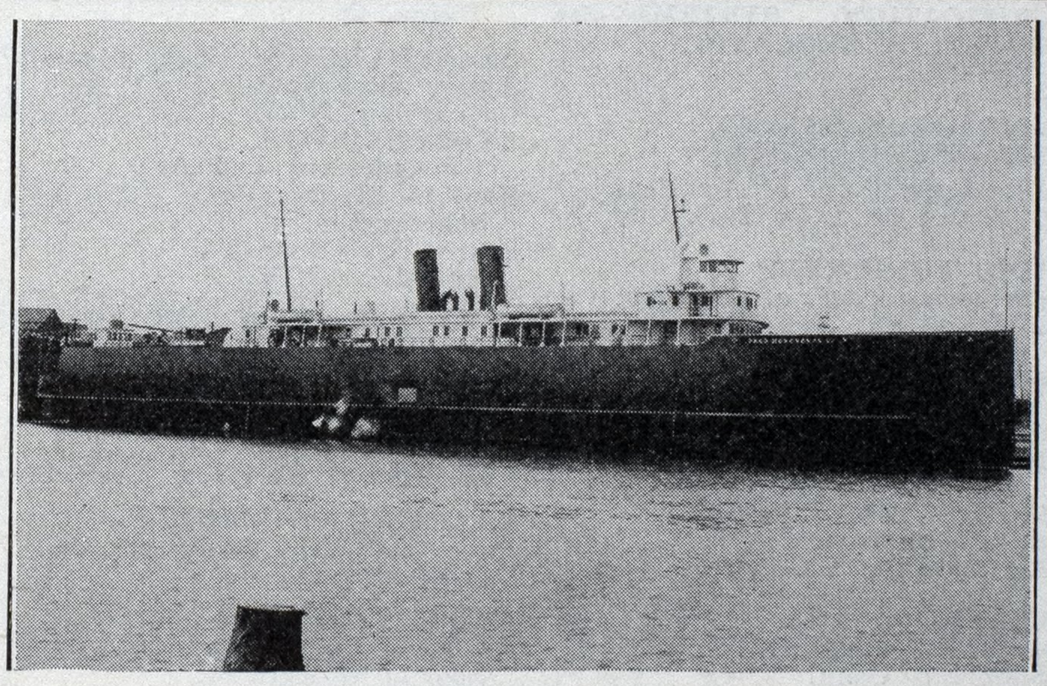
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COILS
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ZINC BOILER PLATES

Registered Trade Mark

HAZEL-ATLAS GLASS CO.
ROLLING MILLS
WHEELING, W. VA.

Eastern Sales Office—53 Park Pl., N Y C
Western Sales Office—202 Davis St , San Francisco Cal
Southern Sales Office—505 Marine Bk Bldg.. New Orleans, La



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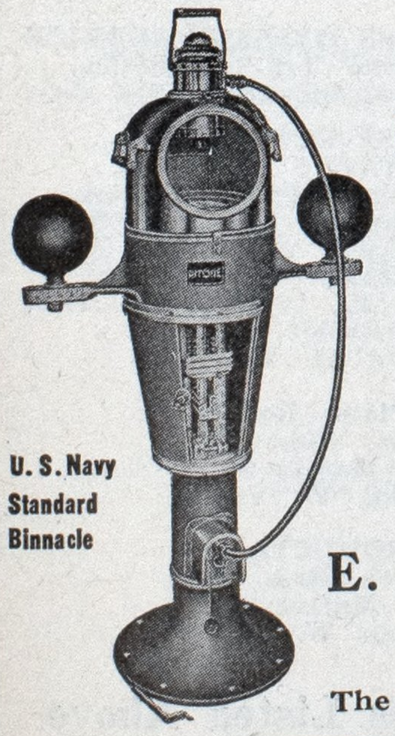
That's our job. Regardless of the size or type of Marine equipment you plan to build, we can meet your requirements.

Our experienced organization and shop equipment insure workmanship that makes Manitowoc-built ships and marine equipment outstanding in marine circles.

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Manitowoc, Wisconsin

MANITOWOC



U. S. Navy Standard Binnacle

THE RITCHIE LIQUID COMPASS

The Standard Liquid Compass the world over.
Used Exclusively in U. S. Navy for over 40 years.
Over 65,000 on Merchant Vessels in all parts of the world.
Made in all sizes 2 to 12" dia.
Magnets for adjusting Purposes.

E. S. RITCHIE & SONS
Brookline, Mass., U. S. A.
Agents for the Great Lakes,
The Upson-Walton Company, Cleveland, Ohio

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Bethlehem Shipbuilding Corp., Ltd., Bethlehem, Pa.
Dean Brothers Co., 323 W. Tenth St., Indianapolis, Ind.
Fairbanks, Morse & Co., 900 South Wabash Ave., Chicago, Ill.
Great Lakes Engineering Works, River Rouge, Mich.

PUMPS (Ballast)
Dean Brothers Co., 323 W. Tenth St., Indianapolis, Ind.

PUMPS (Bilge)
Dean Brothers Co., 323 W. Tenth St., Indianapolis, Ind.
Fairbanks, Morse & Co., 900 South Wabash Ave., Chicago, Ill.

PUMPS (Boiler Feed)
Dean Brothers Co., 323 W. Tenth St., Indianapolis, Ind.
Fairbanks, Morse & Co., 900 South Wabash Ave., Chicago, Ill.

PUMPS (Direct Acting)
Dean Brothers Co., 323 W. Tenth St., Indianapolis, Ind.

PUMPS (Power)
Dean Brothers Co., 323 W. Tenth St., Indianapolis, Ind.
Fairbanks, Morse & Co., 900 South Wabash Ave., Chicago, Ill.

PUMPS (Steam)
Dean Brothers Co., 323 W. Tenth St., Indianapolis, Ind.
Fairbanks, Morse & Co., 900 South Wabash Ave., Chicago, Ill.

PUMPS (Vacuum)
Dean Brothers Co., 323 W. Tenth St., Indianapolis, Ind.

PURIFICATION SYSTEMS—See WATER PURIFICATION SYSTEMS

RADIO COMPASS AND DIRECTION FINDER
Radiomarine Corp. of America, 66 Broad St., New York City.

RADIO EQUIPMENT
Radiomarine Corp. of America, 66 Broad St., New York City.

RAFTS
Lane, C. M., Lifeboat Co., Inc., 856 Humboldt St., Brooklyn, N. Y.

RAILWAY DRY DOCKS
Crandall Engineering Co., 134 Main St., Cambridge, Mass.

RANGES
Stamford Foundry Co., Stamford, Conn.

REPAIRS
Maryland Dry Dock Co., Baltimore, Md.

REPAIRS (Electric)
Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

REPAIRS (Marine)
American Shipbuilding Co., Foot of W. 54th St., Cleveland, O.
Bethlehem Shipbuilding Corp., Ltd., Bethlehem, Pa.
Chicago Shipbuilding Co., So. Chicago, Ill.
Great Lakes Engineering Works, River Rouge, Mich.
Manitowoc Ship Building Corp., Manitowoc, Wis.
Newport News Shipbuilding & Dry Dock Co., 233 Broadway, New York City.
New York Shipbuilding Co., Camden, N. J.
Sun Shipbuilding & Dry Dock Co., Chester, Pa.
Todd Shipyards Corp., 25 Broadway, New York City.
Toledo Shipbuilding Co., Toledo, O.
United Drydocks, Inc., 11 Broadway, New York City

REPAIRS (Marine Engines)
Bath Iron Works Corporation, Bath, Maine.
Collingwood Shipyards, Ltd., Collingwood, Ont., Canada

REPAIRS (Turbine)
Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

REVOLUTION COUNTERS
Cummings Machine Works, 255 Atlantic Ave., Boston, Mass.
Sperry Gyroscope Co., Manhattan Bridge Plaza, Brooklyn, N. Y.

ROPE (Manila, Net, Sisal, and Other Hard Fiber Cordage)
Columbian Rope Co., Auburn, N. Y.
Samson Cordage Works, Boston, Mass.
Whitlock Cordage Co., 46 South St., New York City.

ROPE (Transmission)
Columbian Rope Co., Auburn, N. Y.

ROPE OAKUM
Stratford, George, Oakum Co., Jersey City, N. J.

RUBBER TILE
Selby Battersby & Co., 810 Noble St., Philadelphia, Pa.

RUST PREVENTATIVE (Oil)
Texas Co., The, 17 Battery Place, New York City.
Vacuum Oil Co., 61 Broadway, New York City.

SAFETY VALVES (Marine)
Star Brass Mfg. Co., 53 Oliver St., Boston, Mass.

SCHOONERS (Auxiliary)
American Shipbuilding Co., Foot of W. 54th St., Cleveland, O.
Chicago Shipbuilding Co., So. Chicago, Ill.
Toledo Shipbuilding Co., Toledo, O.

SEARCHLIGHTS (High Intensity)
Sperry Gyroscope Co., Brooklyn, N. Y.

SEARCHLIGHTS (Incandescent and Arc)
General Electric Co., Schenectady, N. Y.
Sperry Gyroscope Co., Brooklyn, N. Y.

SELF UNLOADING EQUIPMENT
Smith, Leathem D., Dock Co., Sturgeon Bay, Wis.

SEPARATORS (Oil)
Babcock & Wilcox Co., 85 Liberty St., New York City.

SHAFTING COVERING
Paper & Textile Machinery Co., Sandusky, O.

SHIPBUILDERS
American Shipbuilding Co., Foot of W. 54th St., Cleveland, O.
Bath Iron Works Corporation, Bath, Maine.
Bethlehem Shipbuilding Corp., Ltd., Bethlehem, Pa.
Collingwood Shipyards, Ltd., Collingwood, Ont., Canada.
Great Lakes Engineering Works, River Rouge, Mich.
Manitowoc Ship Building Corp., Manitowoc, Wis.
Maryland Dry Dock Co., Baltimore, Md.
Newport News Shipbuilding & Dry Dock Co., 233 Broadway, New York City.
New York Shipbuilding Co., Camden, N. J.
Smith, Leathem D., Dock Co., Sturgeon Bay, Wis.
Sun Shipbuilding & Dry Dock Co., Chester, Pa.
Todd Shipyards Corp., 25 Broadway, New York City.
Toledo Shipbuilding Co., Toledo, O.
United Drydocks, Inc., 11 Broadway, New York City.

SHIPBUILDING SYSTEMS
Isherwood, J. W., 17 Battery Place, New York City.

SHIP CONSTRUCTION (Channel System)
Ellis Channel System, Inc., 33 Rector St., New York City.

SHIP LOGS
Walker, Thomas, & Son, Ltd. 58 Oxford St., Birmingham, England.

SHIP REPAIR (Marine)
Collingwood Shipyards, Ltd., Collingwood, Ont., Canada.

SHIP STABILIZERS
Sperry Gyroscope Co., Brooklyn, N. Y.

SIGNALS (Submarine)
Submarine Signal Co., 160 State St., Boston, Mass.

SLEEVES (Rubber)
Paper & Textile Machinery Co., Sandusky, O.

SOUNDING MACHINES
Submarine Signal Co., 160 State St., Boston, Mass.

SPUN OAKUM
Stratford, George, Oakum Co., Jersey City, N. J.

STEAMSHIP LINES (Passenger and Freight)
Hamburg-American Line, 39 Broadway, New York City.

STEAM GAGES
Star Brass Mfg. Co., 53 Oliver St., Boston, Mass.

STEAM TRAPS
Davis Engineering Co., 90 West St., New York City.

STEEL BARGES—See BARGES (Steel)

STEERING ENGINES
Hyde Windlass Co., Bath, Me.

STEERING GEARS
American Shipbuilding Co., Foot of W. 54th St., Cleveland, O.
Bethlehem Shipbuilding Corp., Ltd., Bethlehem, Pa.
Hyde Windlass Co., Bath, Me.

STORAGE BATTERIES See BATTERIES

STOVES
Stamford Foundry Co., Stamford, Conn.

STRIP STEEL
Acme Steel Co., 2840 Archer Ave., Chicago, Ill.

SWITCHBOARDS
Engberg's Electric & Mechanical Works, 2229 Vine St., St. Joseph, Mich.
General Electric Co., Schenectady, N. Y.
Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

TELEMOTORS
Hyde Windlass Co., Bath, Me.

TORSION METERS
Cummings Machine Works, 255 Atlantic Ave., Boston, Mass.

TOWING LINES
Columbian Rope Co., Auburn, N. Y.
Whitlock Cordage Co., 46 South St., New York City.

TRACTORS
Clark Tructractor Co., Battle Creek, Mich.
Lewis-Shepard Co., Watertown Station, 125 Walnut St., Boston, Mass.
Mercury Mfg. Co., 4118 S. Halsted St., Chicago, Ill.
Stuebing Cowan Co., 312 Court St., Cincinnati, O.
Terminal Engineering Corp., 17 Battery Place, New York City.

TRANSMISSION (Rope)—See ROPE (Transmission)

TRUCKS
Clark Tructractor Co., Battle Creek, Mich.
Lewis-Shepard Co., Watertown Station, 125 Walnut St., Boston, Mass.
Mercury Mfg. Co., 4118 S. Halsted St., Chicago, Ill.
Stuebing Cowan Co., 312 Court St., Cincinnati, O.
Terminal Engineering Corp., 17 Battery Place, New York City.

TUBES (Boiler, Stay, Yarrow)
Keating, E. F., Co., 446 Water St., New York City.

TURBINES (Electric)
General Electric Co., Schenectady, N. Y.
Westinghouse Electric & Mfg. Co., So. Philadelphia, Pa.

TURBINES (Marine)
Bethlehem Shipbuilding Corp., Ltd., Bethlehem, Pa.
Newport News Shipbuilding & Dry Dock Co., 233 Broadway, New York City.
Westinghouse Electric & Mfg. Co., So. Philadelphia, Pa.

TURBINES (Steam)
Newport News Shipbuilding & Dry Dock Co., 233 Broadway, New York City.
Sturtevant, B. F., Co., Hyde Park, Boston, Mass.
Westinghouse Electric & Mfg. Co., So. Philadelphia, Pa.

TWINE AND ROPE
Columbian Rope Co., Auburn, N. Y.
Samson Cordage Works, Boston, Mass.
Whitlock Cordage Co., 46 South St., New York City.

VALVES AND FITTINGS
Bethlehem Shipbuilding Corp., Ltd., Bethlehem, Pa.

VENTILATING EQUIPMENT
Diehl Manufacturing Co., Elizabethport, N. J.
Sturtevant, B. F., Co., Hyde Park, Boston, Mass.

WAREHOUSE FACILITIES
Newark, Port of City Hall, Newark, N. J.

WATER PURIFICATION SYSTEMS
Griscom-Russell Co., 285 Madison Ave., New York City.

WELDERS (Electric Arc)
Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

WELDING AND CUTTING GAS
Prest-O-Lite Co., Inc., 30 East 42nd St., New York City.

WHISTLES
Star Brass Mfg. Co., 53 Oliver St., Boston, Mass.

WINCHES
Bethlehem Shipbuilding Corp., Ltd., Bethlehem, Pa.
Dake Engine Co., Grand Haven, Mich.
Hyde Windlass Co., Bath, Me.

WINDLASSES
American Shipbuilding Co., Foot of W. 54th St., Cleveland, O.
Bethlehem Shipbuilding Corp., Ltd., Bethlehem, Pa.
Dake Engine Co., Grand Haven, Mich.
Hyde Windlass Co., Bath, Me.

WIRELESS MESSAGE SERVICE
Radiomarine Corp. of America, 66 Broad St., New York City.

WIRELESS SETS AND APPARATUS
Radiomarine Corp. of America, 66 Broad St., New York City.

WORKBOATS
Lane, C. M., Lifeboat Co., Inc., 856 Humboldt St., Brooklyn, N. Y.

ZINC (Plates Rolled)
Hazel-Atlas Glass Co., 16th & Market St., Wheeling, W. Va.

ZINC PRODUCTS
Hazel-Atlas Glass Co., 16th & Market St., Wheeling, W. Va.

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"Then only, ar under in the depths of her hold,
Some gleam of its wonder man's eye may behold."
—Swinburne.

EACH beam, each well fitted timber, each sturdy rib and plank strong enough to stand the wildest gale,—and she's tight if properly caulked.

The experienced sailor knows the value of tight seams—no one need tell him that—but thousands of ships on the seven seas assure him that his seams will be *tighest* when caulked with

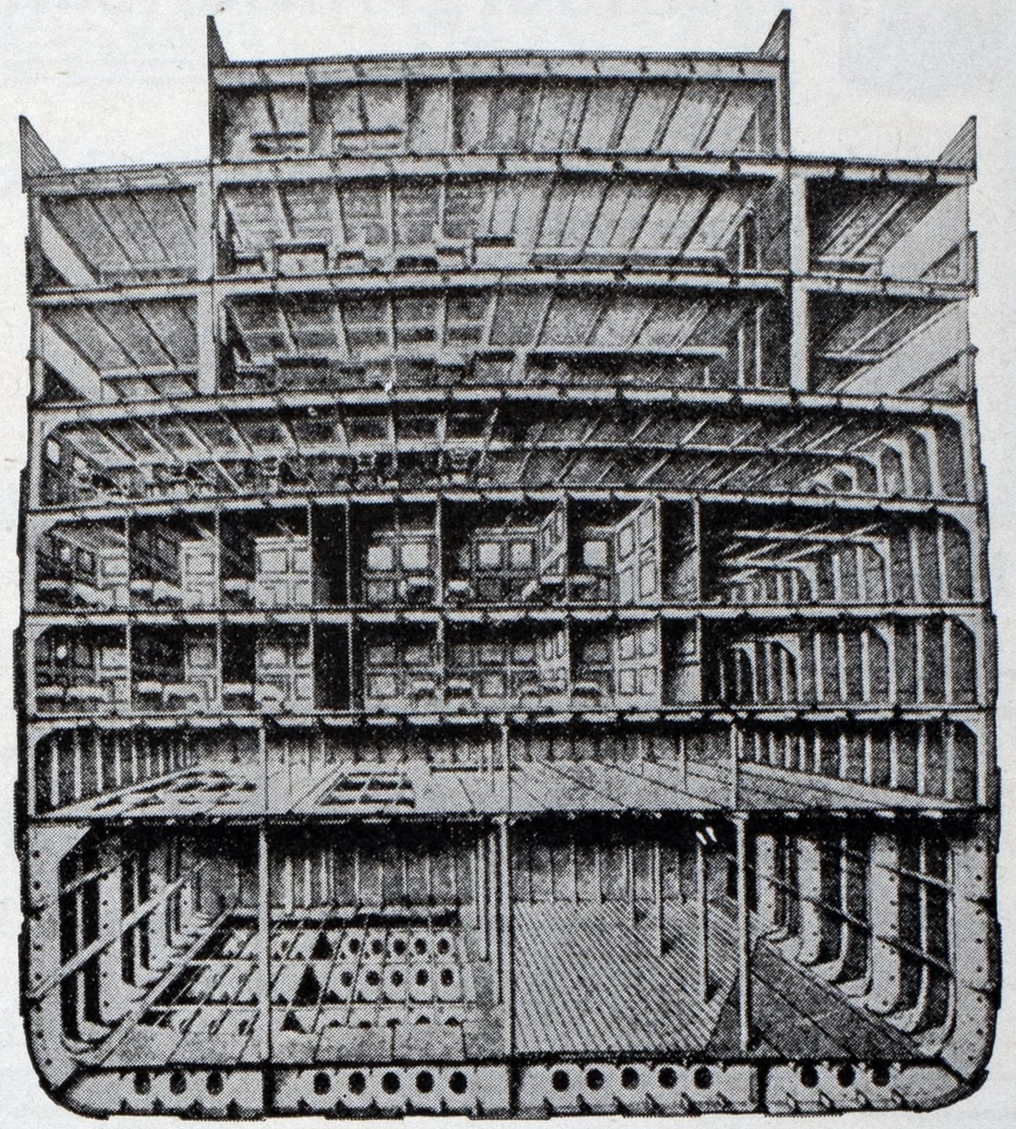
STRATFORD OAKUM

For almost a century Stratford Oakum has caulked the seams of the finest vessels that sail the seas. Be sure you get genuine Stratford Oakum. There is no other "just as good."

George Stratford Oakum Company
JERSEY CITY, NEW JERSEY
Also manufacturers of Cotton Wiping Waste

*3

Isherwood Combination System



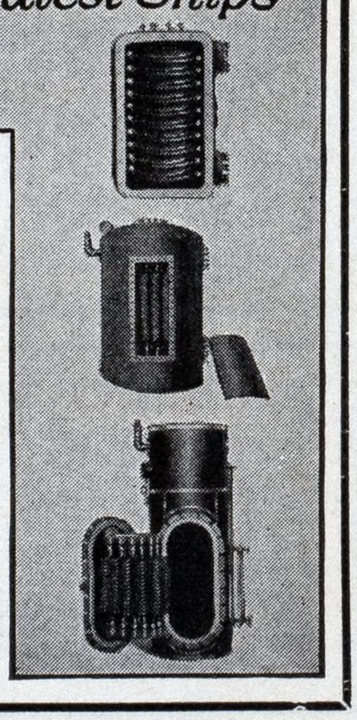
Sectional View of Interior of Passenger Liner designed on the Isherwood Combination System
(In a vessel of this type, deep transverses are recommended for hold construction, but are not essential.)
Adaptable to any type but particularly advantageous for passenger liners.

SIR JOSEPH W. ISHERWOOD & CO., Ltd.
17 BATTERY PLACE, NEW YORK
and 4, LLOYD'S AVENUE, LONDON, E. C. 3

2

Standard on the World's Greatest Ships

Paracoil
MARINE EQUIPMENT



Operating for years without interruption on many of the largest ships afloat, Paracoil equipment is accepted as standard throughout the marine world.

Paracoil equipment includes the following: Feed Water Heaters, Oil Heaters, Oil Coolers, Feed Water Filters and Grease Extractors, Evaporators, Distillers, Steam Traps, Exhaust Gas, Steam or Hot Water Generators—for Diesel Plants, and Rand System for Heating Bunker Oil.

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90 West St. New York City
Factory: Elizabeth, N. J.

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KNOWN THE WORLD OVER — LANE — OLDEST IN THE U.S.A.

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BYRD ANTARCTIC EXPEDITION

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Plaza 1935

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BALTIMORE, MD.

Drydocking, Shipbuilding and Ship Repairs of All Kinds
The Most Modern Shops in Baltimore **2—9000 Ton Floating Drydocks**
Floating Machine Shop
DAY and NIGHT SERVICE
Plant Phones: Curtis 0500 - 0501 - 0502 - 0503



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Passenger Services: New York to Cherbourg, Southampton and Hamburg. New York to Galway, Cobh (Queenstown), Cherbourg and Hamburg.

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Hamburg-American Line
39 Broadway New York

THE MULHOLLAND HATCH-FASTENER COMPANY
Marion Building, Main 0272 **Cleveland, Ohio**

Manufacturers of the Mulholland Simplex and Security Hatch Fasteners.
For Ocean and Lake Trade

OVER 225,000 SETS NOW IN USE ON THE GREAT LAKES

Remember!

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SELBALITH

is the deck covering that has solved the flooring problem on many a lake carferry.

Write for free samples and quotations.

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Floorcrafters
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Leathem D. Smith Dock Co.

Sturgeon Bay, Wisconsin

Self-Unloading Boats our Specialty ***Self Propelled and Self Unloading River Boats***
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Boilers, Tanks, Stacks, Structural Work and Castings

Boiler Repairing Promptly Attended to Day or Night
MARINE WORK A SPECIALTY ELECTRIC WELDING
Works: 36-40 Illinois Street - BUFFALO, N. Y.

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Seamless Steel—Charcoal Iron—Lapwelded Steel
Marine and Stay Tubes with Marine Certificates

E. F. KEATING CO.
Est. 1885
446-454 Water St., New York, N. Y.
Immediate Shipment from New York Stock
Telephone Orchard 9700

TIFOCO

Diesel Crankshafts

Quote **Tifoco** in your Diesel engine specifications and you will have the finest crankshafts obtainable.

TITUSVILLE FORGE CO.
TITUSVILLE, PA.



ANDREW J. MORSE & SON, Inc.
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Established 1837

Diving Apparatus and Submarine Armor
Fire Department Supplies
The Morse Monitor Nozzle
Callahan Shut-Off Nozzle

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Ship Compasses
Navigational Equipment
Contracts a Specialty

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Vessel
and
Insurance Agents

Propeller Wheels, Marine Engines, Brass and Iron Castings. Large variety of Grate Bars in stock.

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Phone: Seneca 5361

John J. Boland Adam E. Cornelius

BOLAND & CORNELIUS

VESSEL OWNERS AND BROKERS
Marine Insurance Agents
Marine Trust Building BUFFALO, N. Y.



Propeller Wheels and Blades
to fit any hub.
Sheriffs Manufacturing Co.
Established 1854
Milwaukee, Wis.

Edward P. Farley & Co.
Incorporated
Steamship Owners, Agents and Brokers
11 Broadway—New York

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For Sale and Miscellaneous Advertisements
10c per word—minimum advertisement—$3.00

Six words must be added for box address.

To insure insertion, advertisements must reach us by the 10th of the month.

Help Wanted Advertisements
6c per word—minimum advertisement—$3.00

Position Wanted Advertisements
4c per word—minimum advertisement—$1.00

Please have remittance accompany order.

For Sale

FOR SALE: MARINE ENGINES AND BOILers of all sizes, light draft, wooden and steel tug boats for sale or charter, derrick boats, deck scows and lighters for sale or charter. Cowles' Towing Co., Buffalo, N. Y.

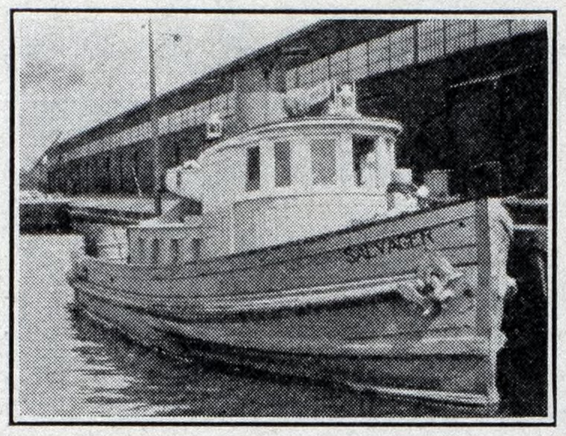
FOR SALE: TWO 140 H.P. SKANDIA DIESel engines for marine or stationary use. Address Box No. 405, care MARINE REVIEW, Cleveland.

FOR SALE: ONE LEATHEM D. SMITH self Unloading equipment complete for canal size steamer. Cowles-Lenahan Dry Dock, Inc., Buffalo, N. Y.

Dredging Bids

U. S. ENGINEER OFFICE. POLAND AND Dauphine Sts., New Orleans, La., April 8, 1929. —Sealed Bids, in duplicate, subject to the conditions contained herein, will be received until 11:00 A. M. May 8, 1929, and then publicly opened, for furnishing all labor and materials and performing all work for dredging the Louisiana and Texas Intracoastal Waterway from Mermentau River to Calcasieu River, La., comprising 8,208,000 cubic yards excavation, place measurement. Further information on application.

For Sale



FOR CHARTER SEASON 1929
DIESEL TUG "SALVAGER"

Length 51 ft., Beam 13 ft., Draft 7 ft., 120 H.P. Fairbanks-Morse Direct Reversible Diesel Engine. New July, 1926.

The R. C. Huffman Construction Co.
556 Terminal Tower, Cleveland

FOR SALE: STR. T. S. CHRISTIE, CApacity 500,000 feet Softwoods, or 325,000 feet Hardwoods; 750 tons coal or cement. HERMAN H. HETTLER LUMBER CO., 2601 Elston Avenue, Chicago, Illinois.

For Sale

FOR SALE:

New and Reconditioned
Steam, Diesel, Gasoline Engine
Generating Sets. Moon Turbine Sets
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JAMES A. GRAHAM,
30 Church St., New York,
Tel. Cortlandt 0893

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FOR SALE; ONE 125 FT. WOODEN STEAM yacht, twin screw, two masts, mahogany cabins. Cowles Towing Co., Buffalo, N. Y.

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BLUE WATER BALLADS, BY CLARENCE P. Milligan. Poems of the inland seas; the romance of sail and steam. Poems of humor, pathos and tragedy. Price $1.85 postage prepaid. Dorrance & Co., Inc., publishers, 368 Drexel Building, Philadelphia, Pa. For sale by all good book stores at lake ports.

Statement of the ownership, management, circulation, etc., required by the act of congress of Aug. 24, 1912, of MARINE REVIEW published monthly at Cleveland, Ohio, for April 1, 1929. State of Ohio, county of Cuyahoga, ss. Before me, a notary public in and for the state and county aforesaid, personally appeared C. J. Stark, who, having been duly sworn according to law, disposes and says that he is the President of MARINE REVIEW, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of Aug. 24, 1912, embodied in section 443, Postal laws and regulations, to wit: 1.—That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, The Penton Publishing Co., Cleveland, O. Editor, A. H. Jansson, Cleveland, O. Advertising manager, J. D. Pease, Cleveland, O., Circulation manager, none. 2.—That the owners are: Names and addresses of stockholders owning or holding 1 per cent or more of the total amount of stock: The Penton Publishing Co., Cleveland, O.; John A. Penton, Cleveland, O.; C. J. Stark, Cleveland, O.; H. C. Estep, Cleveland, O.; J. D. Pease, Cleveland, O.; F. V. Cole, Cleveland, O.; J. R. Dawley, Cleveland, O. 3.—That the known bondholders, mortgagees and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None. 4.—That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him. C. J. Stark. Sworn to and subscribed before me this 29th day of March, 1929. (Seal) H. L. Richey. (My commission expires May 7, 1930.)

*

USEFUL BOOKS

for the man who is interested in

SHIPS

Marine Engineers Guide—Audel	$3.00
Marine Engineers Handbook—Sterling	$7.00
Modern Steamship—Knight	$7.00
Wrinkles in Practical Navigation—Lecky	$5.00
Marine Steam Turbines—Bauer	$4.00
Navigation—Hosmer	$2.50

Book Department

THE PENTON PUBLISHING COMPANY

Penton Building

Cleveland, Ohio

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The Shipping Board Lines listed here, comprising a fleet of 256 vessels, afford complete shipping facilities between Atlantic Coast and Gulf ports and ports in every part of the world.

***AMERICA FRANCE LINE**
42 Broadway, New York City
N. Atlantic to French Atlantic ports

***AMERICAN BRAZIL LINE**
17 Battery Place, New York City
Atlantic ports to ports in Northern Brazil

***AMERICAN DIAMOND LINES**
39 Broadway, New York City
North Atlantic Ports to Holland and Belgium

DIXIE UK LINE
New Orleans, La.
New Orleans to United Kingdom

AMERICAN MERCHANT LINES
17 Battery Place, New York City
Passenger and freight services to United Kingdom

***AMERICAN PIONEER LINE**
11 Broadway, New York City
North Atlantic ports to Orient, India and Australia
Periodically this line conducts an around-the-world service via the Suez Canal

DIXIE MEDITERRANEAN LINE
New Orleans, La.
New Orleans to Mediterranean ports

GULF BRAZIL RIVER PLATE LINE
Hibernia Bank Bldg., New Orleans, La.
Gulf ports to east coast of South America

MISSISSIPPI VALLEY EUROPEAN LINE
Hibernia Bank Bldg., New Orleans, La.
New Orleans to French and Belgian ports

YANKEE LINE
110 State Street, Boston, Mass.
North Atlantic ports to German ports

GULF WEST MEDITERRANEAN LINE
917 Whitney Building, New Orleans, La.
Gulf and South Atlantic ports to Portuguese, Spanish, and North African ports (west of Bizerta)

MOBILE OCEANIC LINE
Mobile, Ala.
Mobile and Eastern Gulf ports to United Kingdom and continental European ports

AMERICAN GULF ORIENT LINE
917 Whitney Bldg., New Orleans, La.
Gulf ports to Orient and Dutch E. I.

AMERICAN REPUBLICS LINE
33 Broad Street, Boston, Mass.
N. and S. Atl. ports to Brazil and River Plate ports, east coast of S. America

ORIOLE LINES
Citizens Natl. Bank Bldg., Baltimore, Md.
North Atlantic ports to west coast of United Kingdom and Irish ports

SOUTHERN STATES LINE
925 Whitney Central Building, New Orleans, La.
New Orleans and Texas ports to German and Holland ports

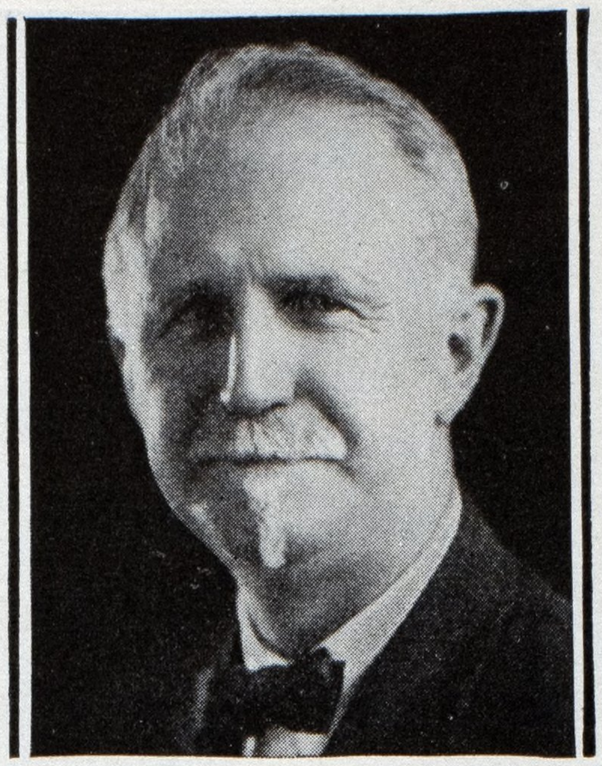
TEXAS MEDITERRANEAN LINE
Cotton Exchange Bldg., Galveston, Tex.
Texas ports to Mediterranean ports

TEXAS UKAY LINE
Galveston, Texas
Texas ports to United Kingdom ports

TEXAS STAR LINE
New Orleans, La.
Texas ports to French and Belgian ports

UNITED STATES LINES
45 Broadway, New York City
Passenger, mail, freight service to England, Ireland, France and Germany

**Accommodations available for a limited number of passengers on these lines.*



ROGER BABSON SAYS:

"Ship Under the American Flag—Our Merchant Marine is Worthy of Your Support"

THE last decade has witnessed another amazing example of American business genius. It has seen the development during recent years of a complete new American Merchant Marine of *over 400* modern, well-equipped, well-manned freight vessels, sailing on regular schedule to all parts of the world. These are the ships contained in the 20 lines operated for the United States Shipping Board and the 17 lines developed by the Shipping Board but now under private ownership.

This new Merchant Marine has contributed greatly to our national prosperity. It has been of inestimable value in the post-war expansion of our industries. It has enabled hundreds of manufacturers to extend the field of their activities. And, today, it offers American business an *unprecedented* opportunity to develop foreign markets and sources of raw materials.

An especially helpful item of service rendered by Shipping Board Lines is the *counsel of the experienced operators* of the Merchant Fleet Corporation. These experts will be glad to give you advice that will prove of value in opening up new trade channels, as well as in developing your present markets.

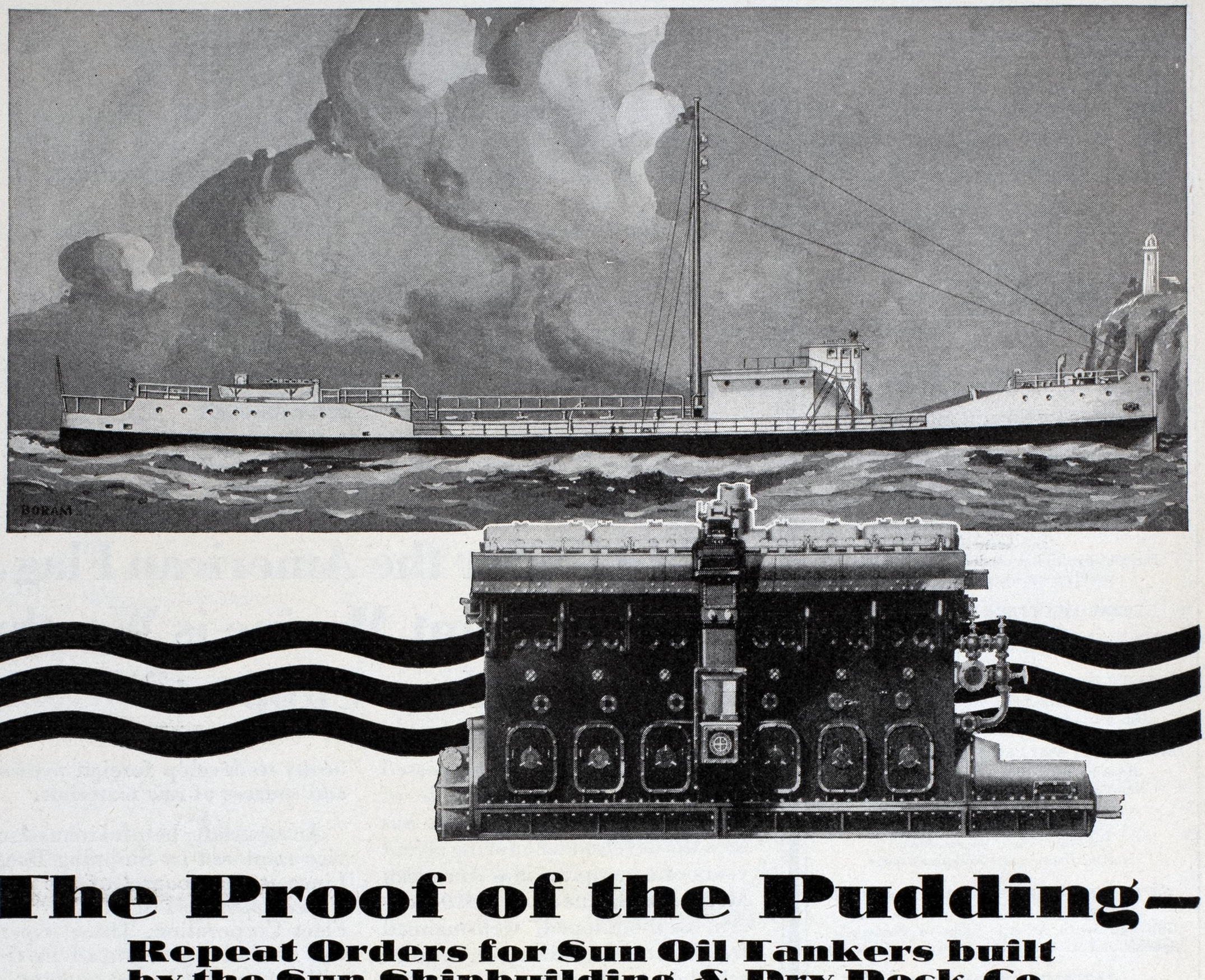
In addition to freight services, the Shipping Board Fleet contains the fast passenger vessels of the United States Lines. Led by the S. S. "Leviathan," world's largest ship, these vessels offer exceptional accommodations to European ports. The American Merchant Line's vessels, sailing weekly from New York, offer comfortable passage to London at rates that are remarkably reasonable.

Write for complete information on either freight or passenger services.



UNITED STATES SHIPPING BOARD MERCHANT FLEET CORPORATION

WASHINGTON, D. C.



The Proof of the Pudding—

Repeat Orders for Sun Oil Tankers built by the Sun Shipbuilding & Dry Dock Co.

FIRST CAME the "Sunoco" with four Bessemer Diesel engines. The "Sunoco No. 4" followed; and then came the motorship "Sun" with Sun-Doxford main engines and two Bessemer 120 H. P. generating sets.

Now comes the new 255′ Sun oil tanker with two main engines of 500 H. P. each and two 120 H. P. generating sets—all by Bessemer.

And still later will follow the two new 185′ Diesel-electric tankers for the Sun Oil Co.—Bessemer powered—now under way at the Sun Shipbuilding & Dry Dock Co. plant at Chester.

Performance Does Count!

The new 255′ Sun Oil Co. tanker, now building by the Sun Shipbuilding & Dry Dock Co. The power plant will consist of 2—500 H. P. Bessemer Diesel main engines and 2—120 H. P. Bessemer generating sets.

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21 Lincoln Avenue ∴ Grove City, Pa.

BESSEMER
DIESEL MARINE ENGINES

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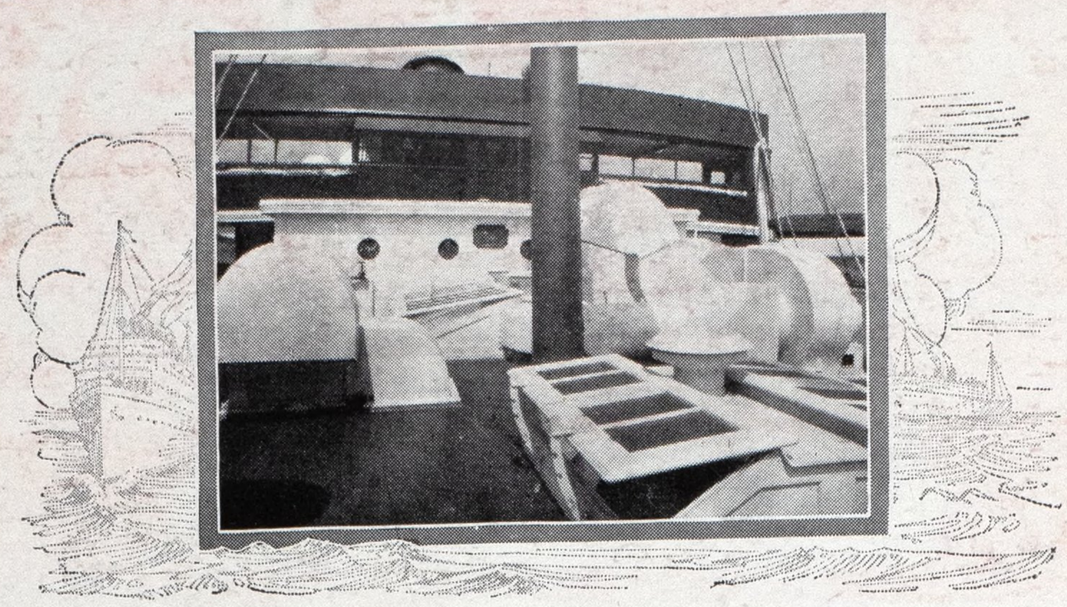
The same time and labor saving facilities operate to the benefit of the shipper on the re-distribution of shipments to other markets. Five trunk line railroads have direct switching connections with the Port of Newark docks. More than twenty steamship lines provide regular service to principal east and west coast and Gulf ports. A network of motor highways makes it possible to reach the principal markets and manufacturing centers of the Atlantic Seaboard in a few hours. New York City itself is accessible via Holland Tunnel in less than half an hour.

Because of these superior facilities and the distinct economies they offer to both shipper and ship operator, the Port of Newark is rapidly becoming one of the outstanding storage and distributing centers of the East.

Steadily increasing volume of all kinds of cargo offers unusual opportunities for several more lines to establish profitable services from this Port. Why not investigate? For information, address

JEROME T. CONGLETON, *Mayor*
NEWARK, N. J. U. S. A.





S. S. Iroquois built by Newport News S. B. & D. D. Co., for the Clyde S.S. Lines. Note Sturtevant Ventilating Fans installed on deck

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S. S. "H. F. HARVEY" owned by Pittsburgh Steamship Co. and built by Great Lakes Engineering Works.

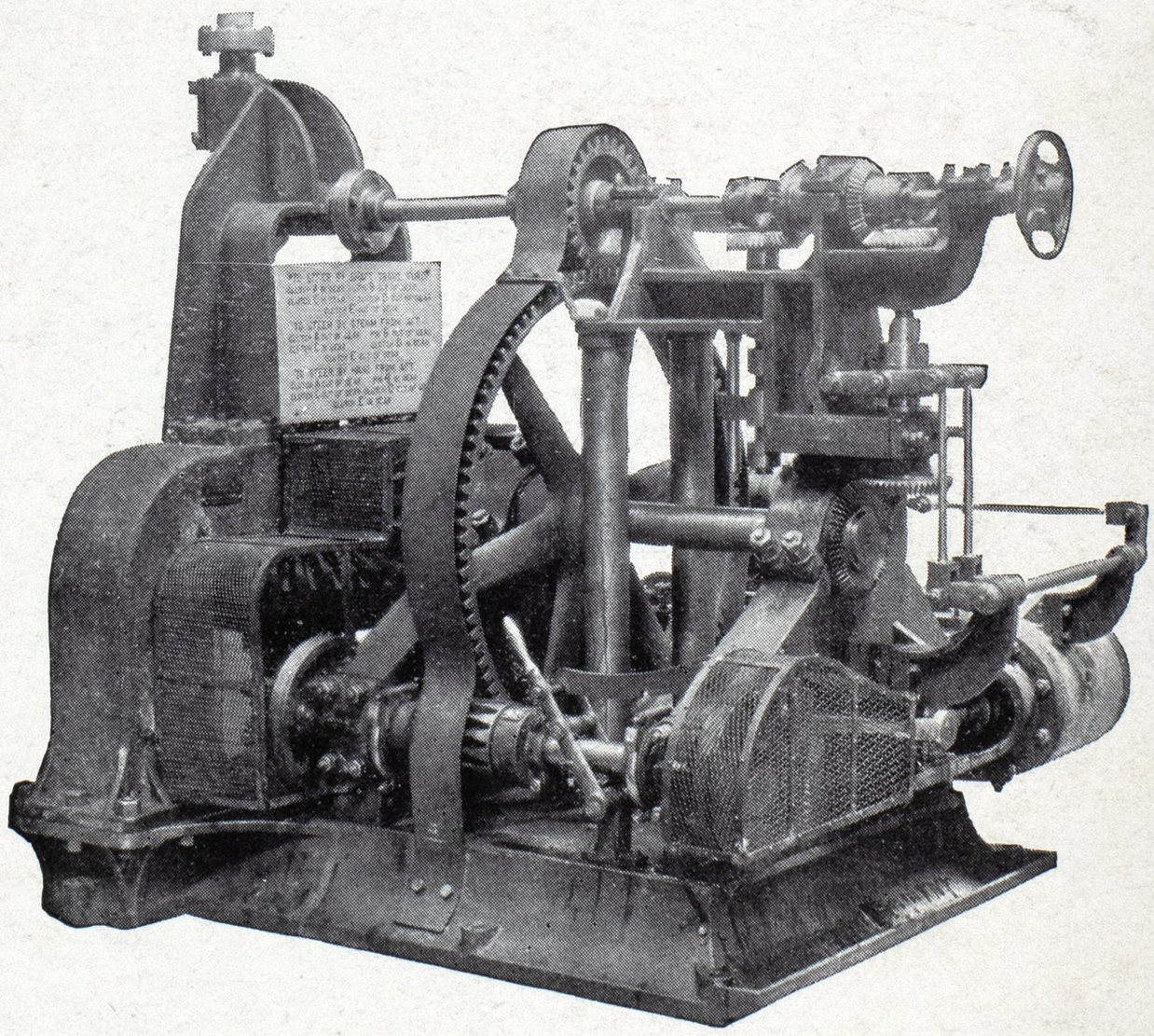
S. S. "B. F. AFFLECK" owned by Pittsburgh Steamship Co. and built by Toledo Shipbuilding Co.

S. S. "S. T. Crapo" owned by Huron Transportation Co. and built by Great Lakes Engineering Works.

These three fine new boats are all equipped with

Hyde

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HYDE Quadrant Type Steering Gear

Hyde Windlass Company

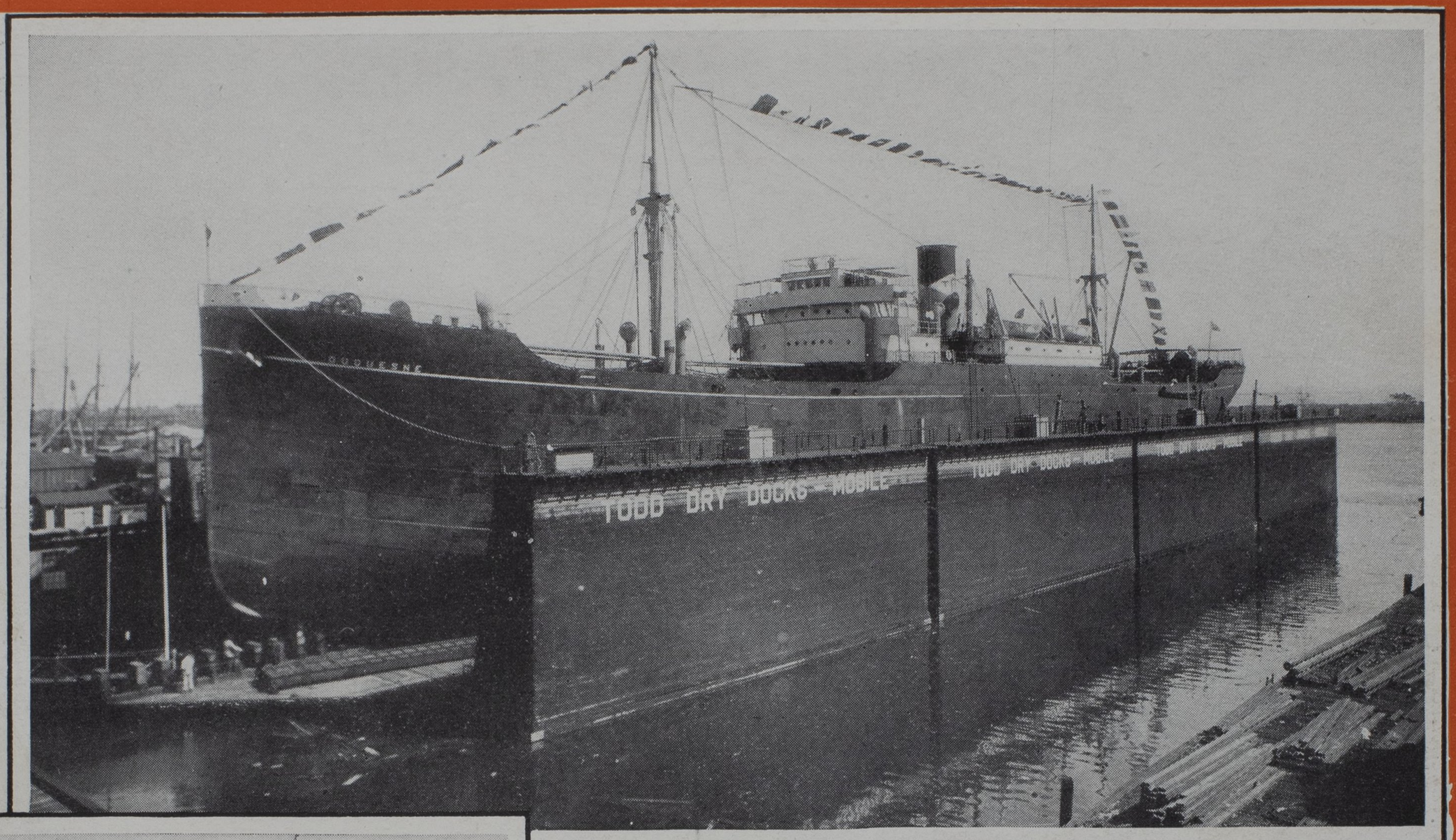
Bath, Maine

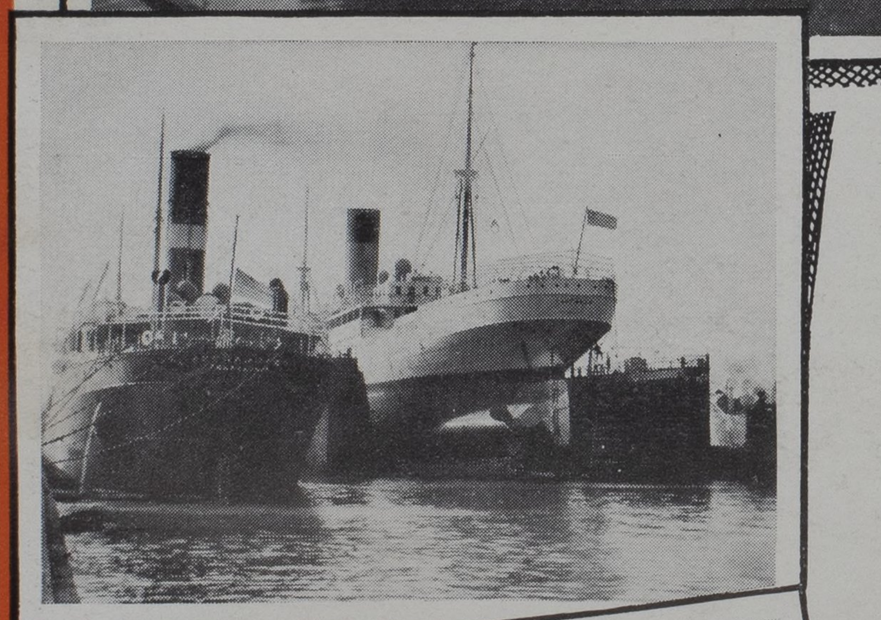
Marine Review

Reg U.S. Pat. Off.

The National Publication Covering the Business of Transportation by Water

May, 1929







TODD SHIPYARDS CORPORATION FACILITIES AT MOBILE, ALA.

TO keep abreast of Mobile's steady growth in importance as a Gulf Port, this company is extending the facilities of its subsidiary, the Todd Shipbuilding and Dry Dock Company, Inc., to provide berthing for six additional large ships, or a greater number of large and small vessels.

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TODD SHIPYARDS CORPORATION

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23 FLOATING DOCKS—2 GRAVING DOCKS—3 SHIPWAYS

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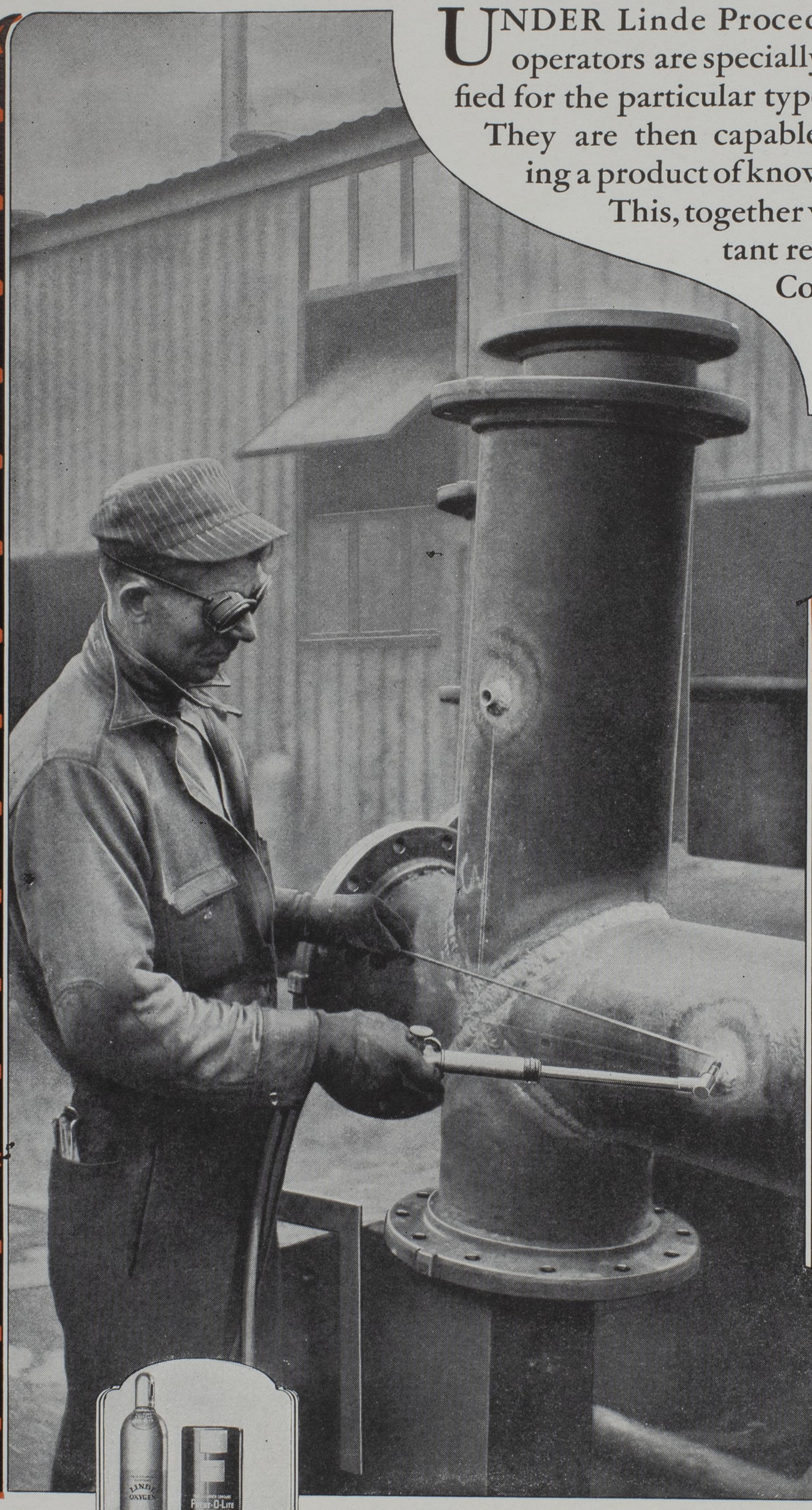
Robins Dry Dock & Repair Co. *Erie Basin, Brooklyn, N. Y.*
Tietjen & Lang Dry Dock Co. *Hoboken, N. J.*
Todd Shipbuilding & Dry Dock Co., Inc., *Mobile, Ala.*
Todd Engineering Dry Dock & Repair Co., *New Orleans, La.*
Todd Oil Burners, Ltd., *London, England*
Todd Dry Dock Engineering & Repair Corp., *Brooklyn, N. Y.*
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